ILREP

Integrated Long Range Economic Planning Computer System

The Integrated Long Range Economic Planning Computer System (ILREP)

User's Reference Manual

AT&T

Corporate Planning

March, 1976

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A.1 What is the Integrated Long Range Economic Planning Computer System

The Executive Policy Committee has requested that an Integrated Long Range Economic Plan be developed for the Bell System. In order to accomplish this task a director-level coordinating committee was appointed with one or more representatives from most Vice-Presidential areas with the two members from the Corporate Planning Division acting as co-chairmen. A process has been developed by which each committee member produces, for his/her area of responsibility, a set of 11 year goals, objectives and plans for accomplishments. The measures of accomplishments are often time series of economic variables extending 11 years into the future.

The purpose of the Integrated Long Range Economic Planning computer system (ILREP) is to provide a mechanism for collecting, evaluating, integrating, and displaying the various inputs and outputs, furnished by the A.T.&T. General Departments, which make up the Integrated Long Range Economic Plans. The system has been developed to provide ease of use by all members of the committee and Corporate Planning Department analysts while maintaining a high level of information security. It can be used with a minimum of computing knowledge.

ILREP provides an envelope around the Interactive Financial and Planning Model (IF). It is a front and back end used to manipulate IF's financial statement, balance sheet and ratio analysis variables.

A.2 How Do You Communicate With It

A minimum of computing knowledge is required, because ILREP provides the user with a simple English-like language. This language is defined to include functions specifically related to Corporate Planning's ILREP process.

A user makes requests by entering statements at a terminal. These statements, like sentences, must contain one verb. They may contain one or more objects, either explicity stated or implied, and one or more verb modifiers.

For eg: PRINT V1,V2:DURING YR1-YR2:
verb objects modifier

In this example, V1 and V2 would be replaced by the names of the ILREP variables and YR1 and YR2 would be replaced by the beginning and end years for which the forecast portion of the series should be printed, in an actual terminal session.

The syntax of the request is checked and users are informed if the statement is incorrect or illegally constructed. The system will wait for a correct command. The user will know when that request has been completed, because the language prompts, by printing a colon when it is ready for a new command.

The language currently contains 13 verbs and over 40 modifiers. The verbs are used to report and alter data and to build analytic models.

A.3 What Kind of Data Can You Use

(chart A.3.1)

The ILREP data base contains all basic series and most of the components of projections needed for integrated long range economic planning analysis.

A standard source of data is provided for running IF (Interactive Financial and Planning Model). Both Bell related and non-Bell system items are available for Corporate Planning Department's needs. Bell system data is provided by the General Departments and US Economic and Demographic data is obtained from sources external to the Bell system.

A scheme for standard naming of all ILREP related Corporate Planning data items has been developed, to make data access easy for the analyst. Each series is assigned a 3 to 12 character MNEMONIC composed of groups of 3 letter codes which reflect the actual definition of the series as closely as possible and in as much detail as necessary.

(Chart A.3.2)

One of the more complicated series names is:

RORCEQAVGATT - rate of return on average AT&T common equity grouped by:

ROR - rate of return
CEQ - common equity
AVG - average
ATT - AT&T.

A simpler example is:

TOTREV - total revenue and:
LCLREV - local revenue

The ILREP User's Manual provides a dictionary list for the entire data base sorted both by MNEMONIC and item definition.

(Chart A.3.3)

The data base consists of the following information:

Historical Data from 1960 to the year prior to the current budget year:

The series chosen were selected because they are most often used in the current ILREP analysis. The values are standard, derived from the

Statistical Manual or Monthly Reports.

Projections from the current budget year to the current budget year + 10

Presently there are 137 series in the ILREP data base and approximately 185 variables that are from the income statement and balance sheet or output from the Interactive Financial Model. This includes basic series and sub components of the projections used for Integrated Long Range Economic Planning. Some examples are TOTREV, TOTEXP, RORATC and the corresponding parts that make up the totals.

Presently the data base is updated quarterly for Executive Policy Committee presentations.

Room is provided in the data base for a limited number of calculated or externally defined, user created series. These are used through the COMPUTE function which is later described.

SECURITY

ILREP has a security system through the use of passwords. Each user is privileged or non-privileged. Privileged users can access and look at the entire data base. Non-privileged users cannot look at any budget year data. The reason for this action is to respect the confidentiality of the data given by the General Departments to the Corporate Planning Organization.

Chart A.3.1

Data Scheme

Mnemonic Code Identifiers

Logical Division

Dictionary Lists

IF Related Variables

Non - IF Related Variables

Chart A.3.2

RORCEQAVGATT	Rate of Return on Average AT&T Common Equity
TOTREV	Total Revenues
LCLREV	Local Revenues

Chart A.3.3

CONTENTS OF DATA BASE

Historical Data from 1960 to the year prior to the current budget year

Projections from the current budget year to the current budget year + 10

User Created Series

SECURITY

Privileged Users

Non-Privileged Users

A.4 What Can You Do to the Data

(Chart A.4.1)

Since the purpose of ILREP is to provide simplified access to the Interactive Financial Model the user has a method of altering the standard Corporate Planning data base.

The user can replace a series, apply an increment or decrement, a percent change, default to ILREP data base value, cause ILREP to generate a default in the IF interface. The analyst can also augment the data base by inputting external data. The analyst can define, (within data base limits), the time frame for which the changes are to be made.

The analyst has available within the ILREP model a set of basic accounting relationships. The equations are useful when an individual has a scenario that requires a change in something like Local Revenues. In that case, once Local Revenues is changed, any further reference to Total Revenues will reflect this change. This gives the analyst the ability to use ILREP to alter parts of IF input that don't actually appear in the interface and have the changes appear in the IF analysis.

ILREP supports the IF level in current use for Corporate Planning presentations.

On termination of the IF analysis a full printout is generated, giving the user the Income Statement, Balance Sheet and Ratio Analysis. In addition, the user has available a complete set of IF output that can be reloaded into ILREP for further processing.

The interface between ILREP and IF is virtually invisable to the user. A runstream is automatically generated reflecting the final alterations made by the user to the IF input series. The model is run, producing the above mentioned printout and computer-stored data file.

Chart A.4.1

DATA MANIPULATION

Alter Base Data
Store Data External to ILREP Data Base
Use Elementary Accounting Relationships
Generate Projected Financial Statements
Retrieve IF Output in Data Base Form

A.5 What Can You Do With the Results of IF Model Output and Other Data

The user can select among numerous plot options to obtain a graph with the desired characteristics.

The following graph functions are among the options available to the user:

1. Titles and Labels

A main title, subtitle, x and y axis labels, curve labels and a legend are available.

2. Scaling of data

A. Automatic

The system will compute a reasonable number of intervals between 6 and 11 along each axis to provide maximum use of the plotting area, with convenient values printed at the tick marks.

B. Specified

The user can specify the minimum and/or maximum X and/or Y values to be plotted and he/she can specify the number of intervals in which to divide either or both axes.

C. Automatic and specified

The user can specify the scale to be used for one axis and can allow the scaling to be done automatically in the other direction.

3. Tick Mark Values

A. Integer vs. floating point

The user can request that the data values printed at the tick marks be outputted in integer form rather than floating point, for instance this is useful when plotting yearly data where the years are appropriately printed in integer form.

B. Text vs. numeric values

The user can substitute text for the values printed at the tick marks. This may be more descriptive of the data, as in the case of a plot of total revenue in 1 specific year, for each Bell system company.

4. Continuous curves and individual data points

The system will output a set of continuous curves or a set of individual data points or a combination of the two. The user can specify the plotting character to be used for each curve on the plot and can elect to plot every nth data point as a character rather than every data point.

5. Dotted and dashed lines

Twenty patterns of dotted and dashed lines are available.

6. Histogram and bar charts

The user can request a histogram chart, the system will compute the frequency of the data and will plot one or more histograms on the same plot, depending on how many sets of data have been input.

The user can request a bar chart, in which case the data will be plotted in bars, instead of as a curve.

Sixteen bar types are available. The user can request that one or more intervals be left between a bar or groups of bars.

The following 19 graphs show some of the plotting and printing options, using the Tektronix graphical output device.

Graphs 1, 2 and 3 were created by simply stating:

PLOT V1,V2:

Graph 1 demonstrates the default options of: automatic scaling to fit the data on a 6 inch by 6 inch graph, suitable for view graph presentation, axes drawing, tick mark and tick mark value drawing, dashed and dotted curve outputting, automatic selecting of TIME as the x axis variable, (printed as integers), since most financial analysis displays are in time series format. Graph 2 and Graph 3 were generated automatically along with Graph 1 to produce a legend page with variable names as curve labels and to list the data values of the series plotted.

Graphs 4, 5 and 6 were created by adding a request for a main title, subtitle, x and y axis labels.

Graphs 7, 8 and 9 were generated by adding an x minimum value, a different number of intervals on the x-axis, integer y values, and characters.

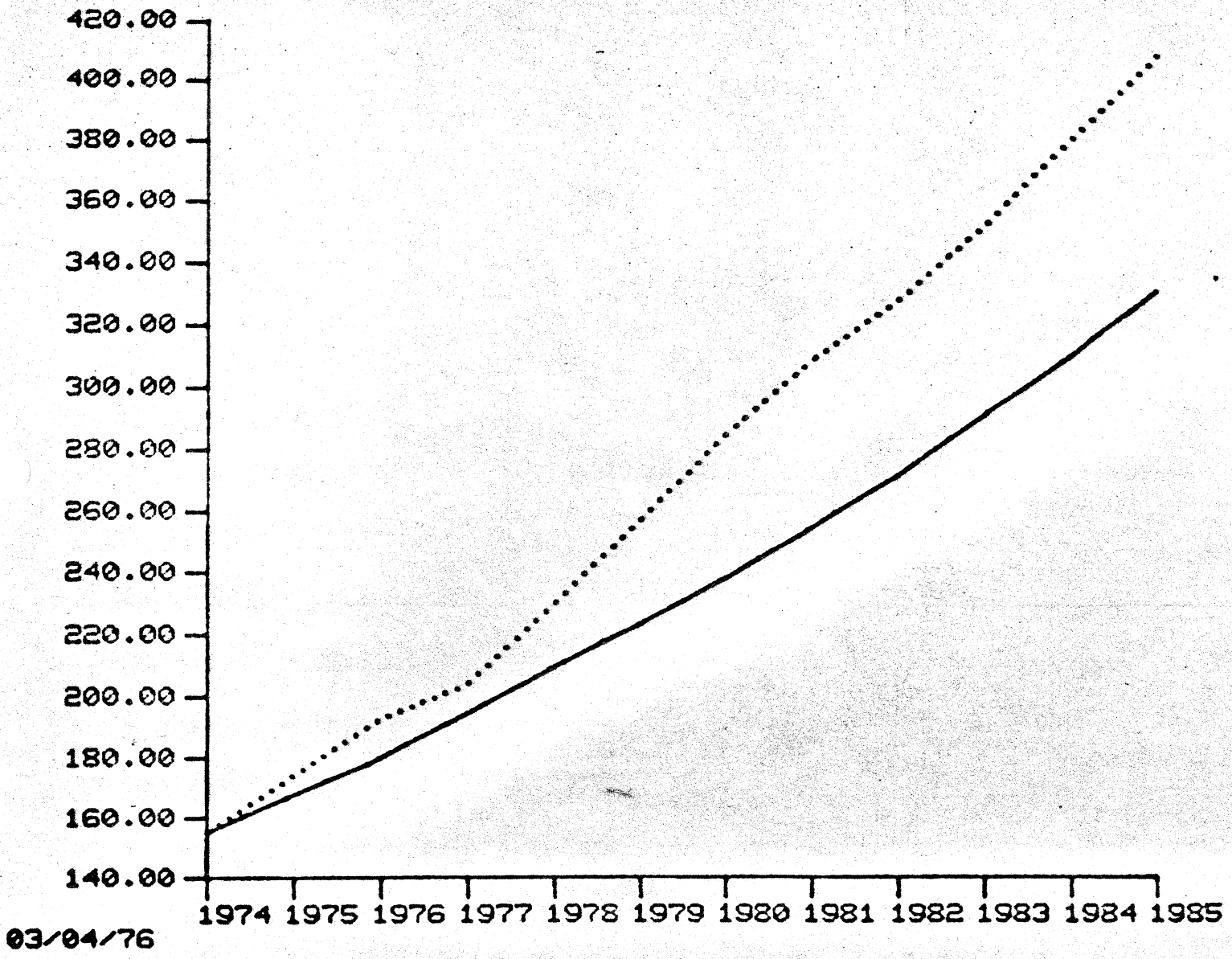
Graphs 10, (minus the curve labels), 11 and 12 were generated together when the user requested a legend and sublegend in addition to the above mentioned choices. Graph 11 is used to label curves on the plot page (Graph 10), with up to 24 characters of descriptive information. It

contains the date the graph was generated and all the titling information necessary to link it to the plot and data series pages (Graph 10 and Graph 12). Characters and dashed and dotted lines are printed to the left of the legend text on this page so that the text can be correctly associated with the curves on the plot page. The legends are then cut and pasted in the best position to be properly associated with the series. (Graph 10).

Graph 13 is a complicated, sophisticated graph originally generated in July, 1975 for an EPC presentation. It demonstrates the type of complex display and associated legend and data pages (Graphs 14-17) which can be generated using ILREP, in a matter of about 5 minutes on the Tektronix graphical display terminal.

Users can output graphs on the Tektronix graphical device or a regular terminal. They can print data series with the full titling capabilities demonstrated in Graph 10. They can print and/or plot data at any time in an ILREP session.

GRAPH 1


420.00
400.00
380.00
360.00
340.00
320.00
300.00
280.00
260.00
240.00
220.00
200.00
180.00
160.00
140.00
1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985
03/04/76

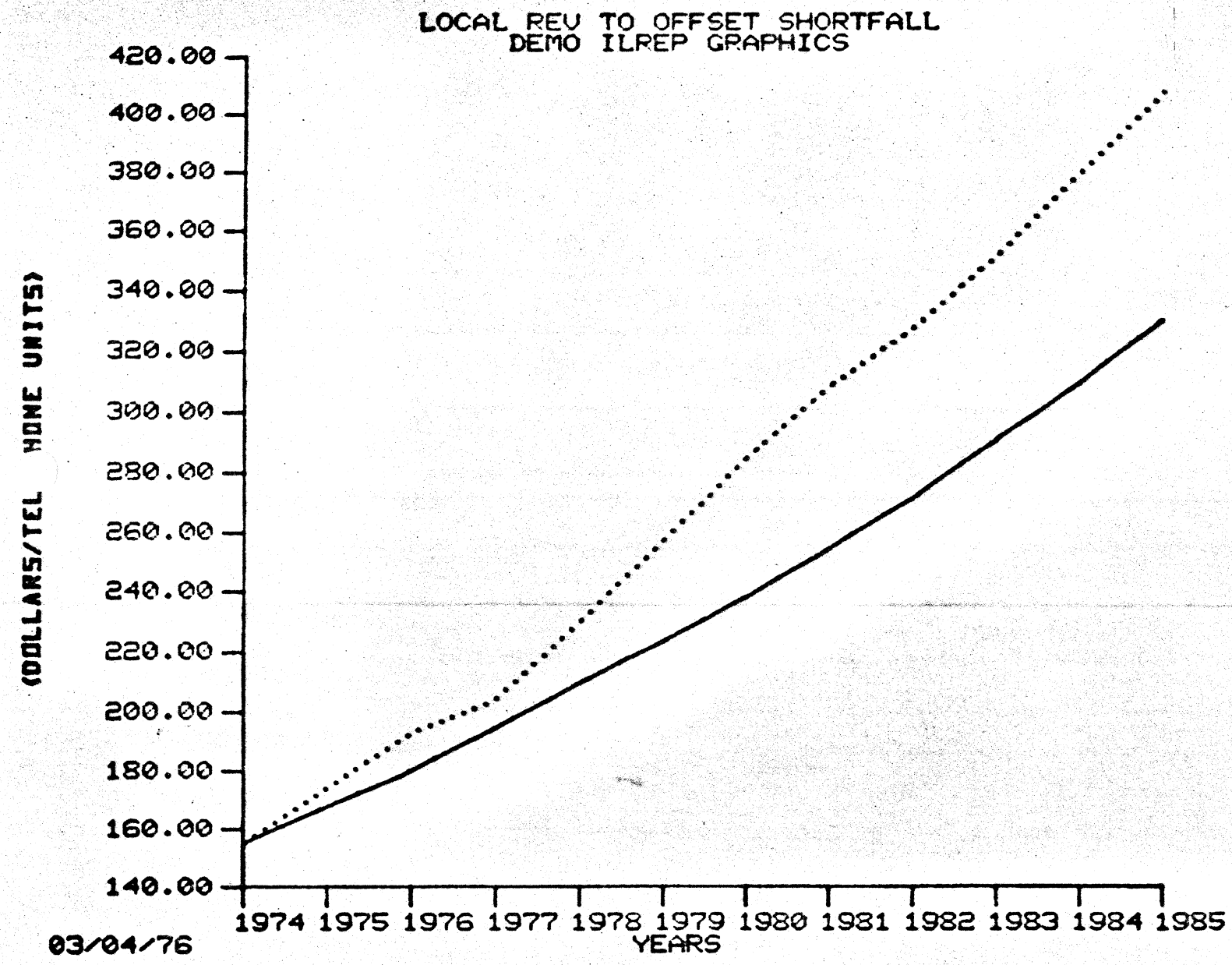
03/04/76

* LCLPRKA

\+ LCLREQ

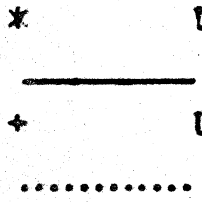
03/04/76

YEARS	LCLPRKA	LCLREQ
1974	154.87084	154.87084
1975	NOT AVAILABLE	NOT AVAILABLE
1976	179.87900	192.71806
1977	194.65322	203.97793
1978	209.67566	229.91003
1979	223.65495	256.82426
1980	238.07597	284.27908
1981	254.27216	307.97473
1982	271.27633	327.24696
1983	290.27059	351.16247
1984	309.05140	379.32669
1985	330.14995	407.19089


LOCAL REV TO OFFSET SHORTFALL
DEMO ILREP GRAPHICS
(DOLLARS/TEL HOME UNITS)
420.00
400.00
380.00
360.00
340.00
320.00
300.00
280.00
260.00
240.00
220.00
200.00
180.00
160.00
140.00
1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985
YEARS
03/04/76

03/04/76

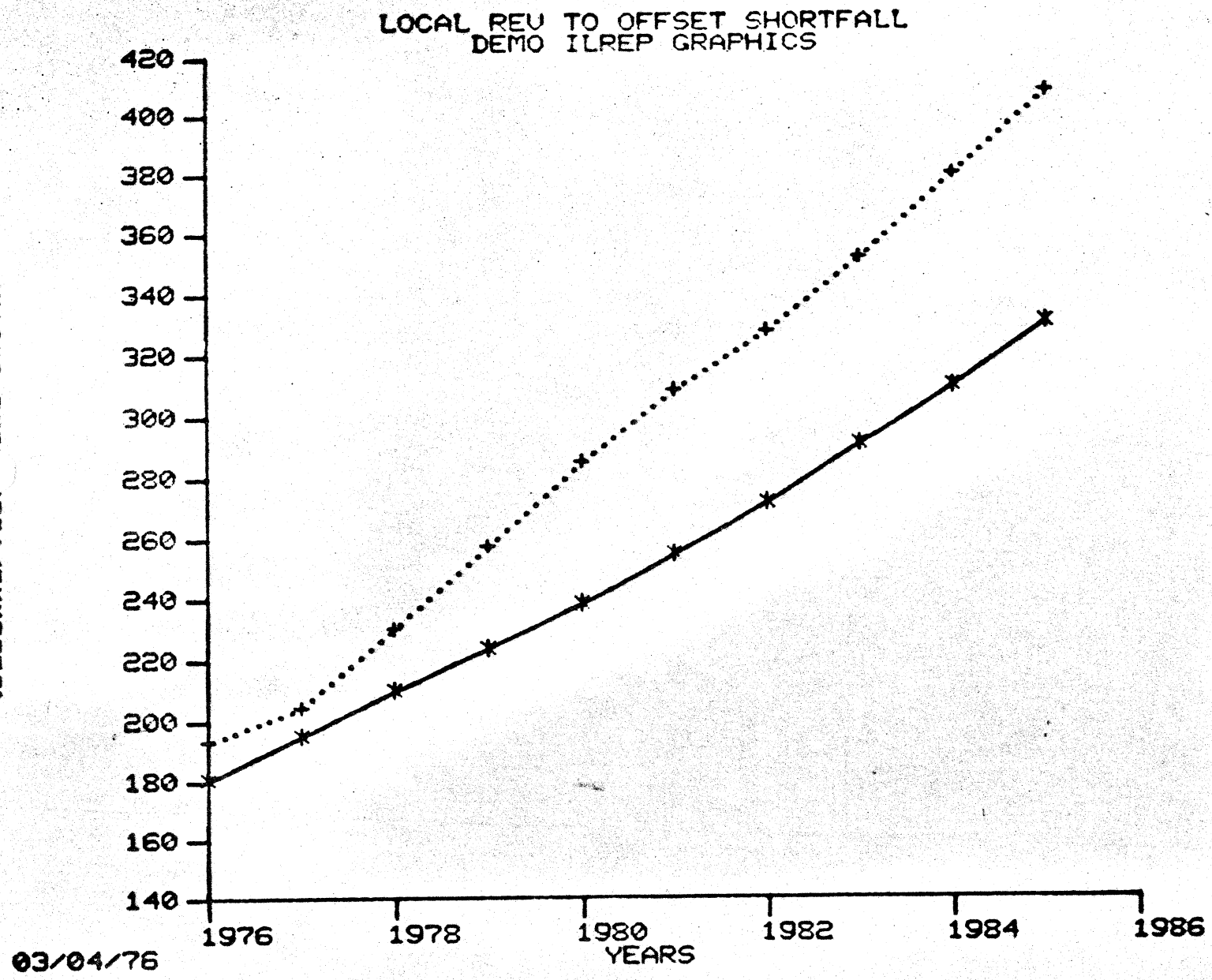
LOCAL REV TO OFFSET SHORTFALL
DEMO ILREP GRAPHICS
(DOLLARS/TELEPHONE UNITS)



03/04/76

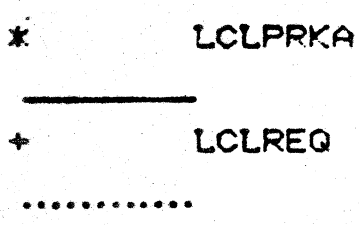
LOCAL REV TO OFFSET SHORTFALL
DEMO ILREP GRAPHICS
(DOLLARS/TELEPHONE UNITS)

YEARS	LCLPRKA	LCLREQ
1974	154.87084	154.87084
1975	NOT AVAILABLE	NOT AVAILABLE
1976	179.87900	192.71806
1977	194.65322	203.97793
1978	209.67566	229.91003
1979	223.65495	256.82426
1980	238.07597	284.27908
1981	254.27216	307.97473
1982	271.27633	327.24696
1983	290.27059	351.16247
1984	309.05140	379.32669
1985	330.14995	407.19089


LOCAL REV TO OFFSET SHORTFALL
DEMO ILREP GRAPHICS
(DOLLARS/TELI IONE UNITS)
420
400
380
360
340
320
300
280
260
240
220
200
180
160
140
1976
1978
1980
1982
1984
1986
YEARS
03/04/76

03/04/76

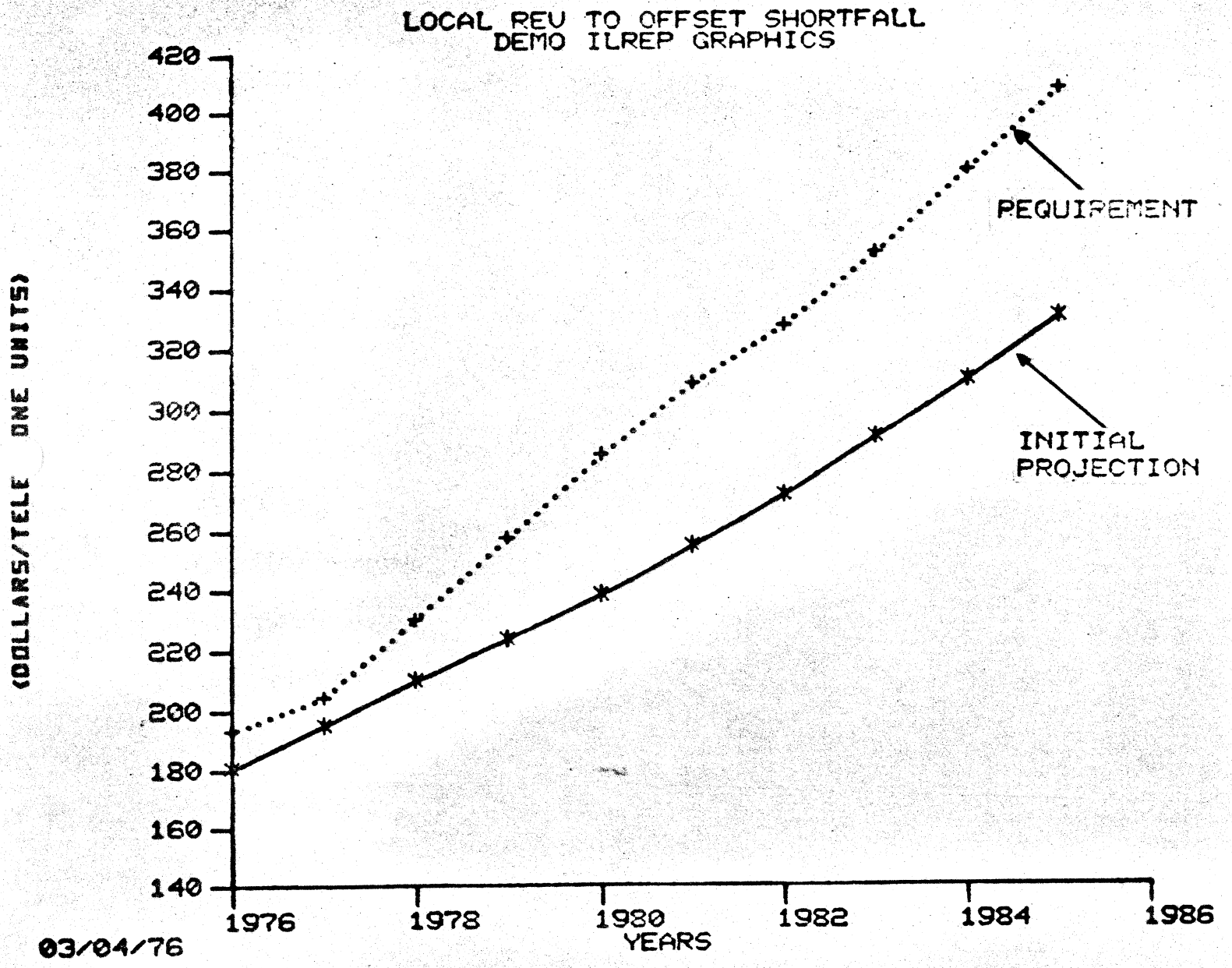
LOCAL REV TO OFFSET SHORTFALL
DEMO ILREP GRAPHICS
(DOLLARS/TELEPHONE UNITS)



03/04/76

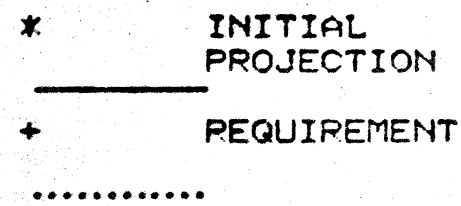
LOCAL REV TO OFFSET SHORTFALL
DEMO ILREP GRAPHICS
(DOLLARS/TELEPHONE UNITS)

YEARS	LCLPRKA	LCLREQ
1974	154.87084	154.87084
1975	NOT AVAILABLE	NOT AVAILABLE
1976	179.87900	192.71806
1977	194.65322	203.97793
1978	209.67566	229.91003
1979	223.65495	256.82426
1980	238.07597	284.27908
1981	254.27216	307.97473
1982	271.27633	327.24696
1983	290.27059	351.16247
1984	309.05140	379.32669
1985	330.14995	407.19089


LOCAL REV TO OFFSET SHORTFALL
DEMO ILREP GRAPHICS
(DOLLARS/TELE ONE UNITS)
420
400
380
360
340
320
300
280
260
240
220
200
180
160
140
REQUIREMENT
INITIAL
PROJECTION
1976
1978
1980
1982
1984
1986
YEARS
03/04/76

03/04/76

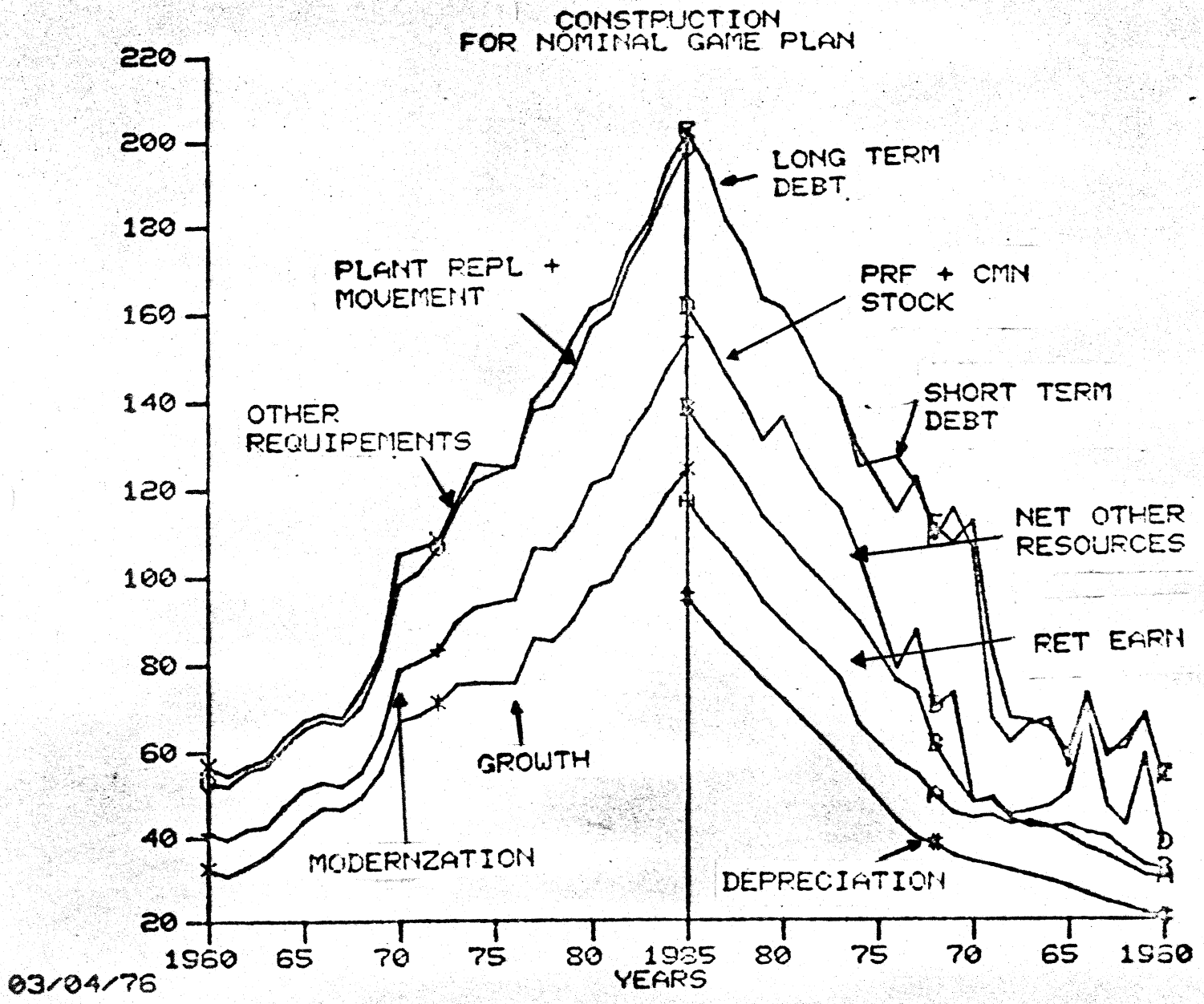
LOCAL REV TO OFFSET SHORTFALL
DEMO ILREP GRAPHICS
(DOLLARS/TELEPHONE UNITS)



03/04/76

LOCAL REV TO OFFSET SHORTFALL
DEMO ILREP GRAPHICS
(DOLLARS/TELEPHONE UNITS)

YEARS	INITIAL PROJECTION	REQUIREMENT
1974	154.87084	154.87084
1975	NOT AVAILABLE	NOT AVAILABLE
1976	179.87900	192.71806
1977	194.65322	203.97793
1978	209.67566	229.91003
1979	223.65495	256.82426
1980	238.07597	284.27908
1981	254.27216	307.97473
1982	271.27633	327.24696
1983	290.27059	351.16247
1984	309.05140	379.32669
1985	330.14995	407.19089


CONSTPUCTION
FOR NOMINAL GAME PLAN
(DOLLARS/TEI 'HONE UNITS)
220
200
120
160
140
120
100
80
60
40
20
LONG TERM
DEBT
PLANT REPL +
MOVEMENT
PRF + CMN
STOCK
SHORT TERM
DEBT
OTHER
REQUIPEMENTS
NET OTHER
RESOURCES
RET EARN
GROWTH
MODERNZATION
DEPRECIATION
1960
65
70
75
80
1985
80
75
70
65
1960
YEARS
03/04/76

03/04/76

CONSTRUCTION
FOR NOMINAL GAME PLAN
(DOLLARS/TELEPHONE UNITS)

*	GROWTH
+	MODERNZATION
O	PLANT REPL + MOVEMENT
X	OTHER REQUIREMENTS
#	DEPRECIATION
A	RET EARN
B	NET OTHER RESOURCES
D	PRF + CMN STOCK
E	LONG TERM DEBT
F	SHORT TERM DEBT

03/04/76

CONSTRUCTION
FOR NOMINAL GAME PLAN
(DOLLARS/TELEPHONE UNITS)

YEARS	GROWTH	MODERNZATION	PLANT REPL + MOVEMENT	OTHER REQUIREMENTS
1960	32.12470	40.55150	52.57848	56.22568
1961	30.65893	39.32800	51.82224	54.15074
1962	32.85914	41.84100	55.34170	56.61121
1963	35.07663	42.40608	56.61365	58.19080
1964	38.92242	46.99212	61.20106	63.32888
1965	43.67854	51.12242	65.39264	67.10291
1966	46.93499	52.66189	67.07512	68.46217
1967	46.57496	51.82176	66.31585	67.70659
1968	49.25104	55.14521	70.05052	74.02641
1[illegible]9	55.52253	63.88700	80.94146	82.34658
1970	67.12182	78.76121	98.14647	104.84304
1971	68.35669	80.46513	100.88146	106.50583
1972	70.82782	82.88499	106.34446	108.01231
1973	75.32828	89.72435	115.59017	116.93712
1974	75.81563	92.90800	121.77403	125.75249
1975	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE
1976	75.62196	94.81459	125.41907	124.93370
1977	85.74353	106.44650	137.85120	140.28411
1978	85.27539	106.10948	138.92520	145.16669
1979	90.03604	111.95093	146.05877	154.34216
1980	97.54332	121.05628	156.80306	161.10920
1981	98.88627	122.85367	159.80110	163.05049
1982	106.54021	132.16540	170.86267	174.44505
1983	111.87061	138.71614	178.95593	181.23857
1984	118.91391	147.32966	189.42385	194.19796
1985	124.12262	153.77997	197.66634	201.92484

03/04/76

CONSTRUCTION
FOR NOMINAL GAME PLAN
(DOLLARS/TELEPHONE UNITS)

YEARS	DEPRECIATION	RET EARN	NET OTHER RESOURCES	PRF + CMN STOCK
1960	20.21548	29.89828	31.88869	37.87421
1961	21.56968	30.48683	32.80078	58.72061
1962	22.87840	32.65363	36.16504	42.33010
1963	24.16072	35.00599	39.64420	46.87702
1964	25.97544	37.01061	40.47632	68.67429
1965	27.60262	39.55849	42.36230	50.08058
1966	29.19905	41.98272	41.80772	46.73285
1967	30.32818	43.15536	42.02419	45.49106
1968	31.70034	42.62766	43.89234	44.64509
1 9	32.76111	44.83370	48.33002	48.74407
1970	33.76758	44.20475	47.63633	47.65815
1971	35.27191	45.44241	54.07285	72.96809
1972	37.70213	49.29939	61.19210	70.06840
1973	39.45438	54.53703	73.43770	87.34498
1974	43.57595	57.23852	76.00834	78.67054
1975	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE
1976	53.75484	65.95638	89.36745	104.92565
1977	58.42282	76.74089	94.31749	115.64948
1978	63.09000	81.46774	99.30824	120.14485
1979	67.48237	85.23922	103.61225	127.14503
1980	71.91998	89.52053	108.84832	136.40434
1981	76.17735	94.16477	113.71288	131.02912
1982	80.40654	100.84541	120.98833	139.27709
1983	84.82205	106.34644	127.20286	146.03354
1984	89.53416	110.86000	131.87689	154.10992
1985	94.69151	117.07943	138.05832	161.07932

03/04/76

CONSTRUCTION
FOR NOMINAL GAME PLAN
(DOLLARS/TELEPHONE UNITS)

YEARS	LONG TERM DEBT	SHORT TERM DEBT
1960	54.03547	52.98706
1961	68.04323	68.04323
1962	60.08928	62.24642
1963	59.51400	58.32251
1964	72.67436	72.84827
1965	56.03902	59.22687
1966	67.04295	65.04933
1967	65.87818	66.73923
1968	61.78103	67.27531
1969	67.35537	83.25068
1970	105.77729	112.44431
1971	115.44706	107.30212
1972	107.91463	111.30941
1973	122.14004	120.35886
1974	114.40253	126.91608
1975	NOT AVAILABLE	NOT AVAILABLE
1976	128.94324	124.93878
1977	140.41160	140.41160
1978	145.17235	145.17235
1979	154.34112	154.34112
1980	161.10982	161.10982
1981	163.05080	163.05080
1982	174.44509	174.44509
1983	181.24175	181.24175
1984	194.19434	194.19434
1985	201.93139	201.93139

Along with plotting and printing data, the user can calculate new series from the existing data base or from new data input for just that terminal session. For example, the analyst can calculate series not in the data base, like, 'Revenues per Telephone Units'. A number of functions can be requested to manipulate data. (See Chart A.5.1)

The user can save the results of an IF run for future reference. The SAVEd results can be RESTOREd in a later session. There are general models also available for the analyst to restore. These include the Initial Projections, Financial Objectives and Nominal Game Plan models, created quarterly for the Executive Policy Committee (EPC). The analyst can compare and contrast the output of several models in an ILREP session by successively restoring models and computing differences and percent changes between series from one model to another.

Chart A.5.1

COMPUTE

Four Basic Arithmetic Functions (Sum,Diff,Prod,Ratio)

Sets one series equal to the exponential value of another

Sets one series equal to the absolute value of another

Sets one series to the power of another

Sets One Series Equal to Another

Sets a Series Equal to a Constant

Natural or Base 10 Logarithms

Growth Rates ((V1(T)-V1(T-1))/V1(T-1))*100.0

Percent Difference ((V2(T)-V1(T))/V1(T))*100.0

Inflation Adjustment on Many Series

Shortfall and Percent Shortfall

SAVE

RESTORE

A.6 How Helpful is the System

Features have been built into this system to make it as friendly as possible.

A user's reference manual is stored in a file on the machine and can be updated and reproduced whenever it becames necessary and when time and resources permit.

An on-line explanation of each verb, modifier and data series is available through use of the EXPLAIN verb.

Users can make requests in a language that looks like English.

Most error messages are in English. They are clear, explaining why an error occurred. The user's reference manual gives further details about why the error happened and what to do.

Warnings are printed if a user is about to inadvertently overwrite a saved model or a computed variable.

Users who may have forgotten to save their models are asked, at the end of a session, if they would like to save them.

Data series have been given meaningful names and a dictionary is available, in alphabetical order by the definition of the series.

Default values are loaded for the data. Users only need to alter the series which they wish to change from the base values. Similarly, most of the language modifiers have defaults, so that a request is short, unless the user wishes to select new options.

A user can take advantage of the ILREP data manipulation facilities for data series which are outside of the ILREP data base. For example, a JANUS chart like the one discussed in Section A.5, could be generated for up to 20 user supplied series. In addition models created using IF independent of ILREP, for analyses which ILREP currently cannot handle, can still be loaded into ILREP to take advantage of its report, display and compute facilities. In this manner, the fine features of both ILREP and IF can be used.

Three reference models are saved for each quarterly update to the EPC. These are the initial projection, the financial objectives, and the nominal game plan.

Administratively, the system is helpful, because:

The data is secure for the budget year. It can only be accessed by users

with a privileged password.

Users do not have to save their models, and those which have been saved can be deleted through ILREP, when no longer useful. This minimizes storage costs. An easy UNIVAC systems processor will list names of the models you have created.

Early indication of ILREP system problems is available through a log kept of frequency and success of use. The sooner problems are discovered, the sooner they'll be fixed.

And finally, user support is provided by one member of the ILREP computer staff.

A.7 What are ILREP's Limitations

By design intent, to allow a consistent, easy to use approach to analyses with IF, a limited subset of IF's capabilities are available. ILREP uses IF to forecast 11 years of data beginning with the budget year. ILREP does not use IF's retrospective analyses feature. The only 3 combinations of independent variables are: construction, revenue or construction, earnings per share or construction, rate of return on average AT&T common equity

As to technical limitations there are core size constraints which limit the number of items in the data base, the number of work-space (computed) variables (20) and the number of historical series (currently 12). This constraint will not exist when ILREP is linked to the Data Management System(DMS).

There is a constraint in the function capabilities. The user can't adjust all series for inflation. In addition, the computational operations are clumsy, for example, to add two series together and then multiply them by a third series, the user would have to use the following statements:

```
COMPUTE NEWVAR=SUM(V1,V2):
COMPUTE NEWVAR=PROD(NEWVAR,V3):
```

The next phase of ILREP will contain a refined method of computation, hopefully of the form:

```
COMPUTE NEWVAR=(V1+V2)*V3:
```

Another constraint is in the number of users who can simultaneously use ILREP effectively. Probably 3 or 4 users sharing the UNIVAC time-sharing machine at once and loading the large ILREP system will cause the computer to run the jobs more slowly.

Another consideration when using ILREP is that it still has 'rough edges'. The more users who try the system, the more imaginative their efforts are, the more likely they will be to help us discover program 'bugs' and new facility requirements.

A.8 What are the Planned Future Developments

In view of the limitations described in Section A.7, a phase II ILREP is planned.

Technical advances will be made by using the Data Management System (DMS). This will greatly expand ILREP's capabilities in terms of the size and organization of the data base.

New programming capabilities will be applied to the system to develop 'common code', i.e. one set of code in the computer for all the users to access simultaneously. This will greatly improve the multi-user problem of slowing down the machine in the current UNIVAC environment.

New language facilities will be provided in the area of a more sophisticated equation handling method.

A new interface to IF will be added to eliminate the limitations on using all IF's capabilities.

B. ACCESS TO THE ILREP SYSTEM

The ILREP system may be accessed from any remote location via a terminal. It resides on the AT&T UNIVAC 1110, located at Centennial Park II, New Jersey.

The user must request an account number from Dave Pauker (201-463-3859), and an ILREP password from the ILREP administrator, Ellen Kippel, (212-393-8591). A password may be privileged or non-privileged. In the latter case, access to certain data is restricted. Thus the user may retrieve only that data which he/she has been authorized to view.

The user may dial (201-463-5800) to access the computer at 30 CPS (characters per second) or (201-463-5862) to access the computer at 120 cps.

After the physical connection to the computer has been established, the user must enter a carriage return. The system will respond with:

ENTER USERID/PASSWORD:

The user should depress the carriage return or RETURN key. The system will respond with:

*A.T.&T. COMPTROLLERS * U1110

Now the user is ready to enter a RUN statement. This has the form:

@RUN (user initials),(account number),ILREP

where the user's actual initials and account number should replace the fields in parentheses.

To access the ILREP system, enter:

@CALL ILREP(YY)

The version of ILREP used is related to the budget year. The notation (YY) at the end of the statement @CALL ILREP must be replaced with the last two digits of the budget year which the user wishes to work with. The statement @CALL ILREP is still available for the 1975 budget year ILREP computer system. Once the user enters the call to ILREP, ILREP will respond with:

ILREP (level id) (Date) (Time)

ID/PASSWORD/DEV:

The user must now enter an appropriate ID/PASSWORD/DEV. The ID is a 6 character user identification, generally some combination of the user's initials, which is printed on the batch output of this ILREP session. The batch output of ILREP (Income Statement,etc.) will be placed in a

bin located on the 18th floor of 130 John Street, New York. These bins are labelled from A to Z and the output will be placed in the bin that corresponds to the first letter of the user's ID. The password is the one assigned to the user by the ILREP administrator. DEV is the terminal device used for that session. If the user is on an Execuport, CDI terminal, or any of the usual output devices, the /DEV section of ID/PASSWORD/DEV can be omitted. If the output device is the Tektronix graphical display terminal, the user must enter /TEK as the last part of the request.

When a legitimate ID/PASSWORD/DEV is entered, ILREP responds with:

```
MODEL BEING INITIALIZED
```

At this point, default values for some of the variables are loaded and, upon completion of the loading, ILREP responds with:

```
INTEGRATED LONG-RANGE ECONOMIC PLANS
:
```

The colon is a prompt character, indicating to the user that the system is expecting user input.

C.1 INTRODUCTION

A simple English-like language was designed to facilitate interaction with ILREP. A user's request is a statement which must contain a verb and one or more objects (either explicitly stated or implied). Optional verb modifiers can be included in a statement where appropriate. A modifier forms a separate clause within a sentence. Each clause is terminated by a colon. A statement can be continued on a new line by entering a pound sign (#), depressing the carriage return, and entering the remainder of the sentence. Sentences can contain a maximum of 1000 characters, excluding blanks.

For example:

PRINT V1,V2,V3: DURING 1980-1982:

This message contains the verb PRINT, the objects (variables) V1,V2, and V3, and the modifier DURING 1980-1982.

If a request is made which is syntactically incorrect or illegally constructed, the system will print a diagnostic message and await a new, correct request. Thus if the user entered:

PRINT V1,V2,V3 DURIN 1980-1982:

(where the colon is missing between V3 and DURIN, and, in addition, DURIN is misspelled for DURING), the system would type:

PRINT NOT RECOGNIZED

and would wait for another user request.

The remainder of section C will describe the modifiers and verbs available in ILREP, and will indicate what objects and modifiers can be combined with each verb, to form a complete request.

The verb EXPLAIN can be requested at any time since its function is to list the language components and allow the user to request a detailed explanation of any part of the vocabulary. The ECHO verb can also be requested at any time to print each user command as it is executed. STOP ends an ILREP session whenever it is requested.

The DEFINE or RESTORE verb must be requested before any other verb except EXPLAIN, ECHO and STOP. This is to insure that the input variables are initialized either to pre-determined default values (DEFINE) or values calculated in a previous ILREP session (RESTORE). Once this has been accomplished, any of the remaining verbs can be acted upon by the system.

C.2.1 INDEP

The INDEP statement is an optional modifer for the DEFINE statement. Its format is:

INDEP [=]* (V1,V2)**:

where V1 and V2 must be one of the following combinations:

REV,CON or CON,REV
RCE,CON or CON,RCE
EPS,CON or CON,EPS

V1 and V2 are the independent variables for the Interactive Financial Model (IF) run which may be executed during the SOLVE phase of an ilrep session.

The default values set for INDEP are REV,CON.

NOTE: *Square brackets [] surround optional symbols, words, or phrases.
**Parentheses () surround necessary objects which can be identified by many actual names, and are given a general name within the parentheses.
For instance, V1,V2 in the INDEP statement above represents either REV,CON or EPS,CON or RCE,CON. The parentheses should not be employed when actually making a request.

C.2.2 DURING

The DURING statement is an optional modifier for the DEFINE, PRINT, PLOT, INPUT and COMPUTE statements. Its format is:

DURING (YR1) [-(YR2)]:

When used with the DEFINE statement, YR1 must be the current budget year or the year following the current budget year depending on the user's password. Privileged users may begin in the current budget year. Other users must begin in the year following the current budget year. This restriction is intended to prevent non-privileged users from viewing the current budget year forecasts. This does not, however, prevent them from running IF beginning with the current budget year data. when used with other verbs YR1 may be greater than or equal to the current budget year or the year following the current budget year. YR2, if specified, must be greater than or equal to YR1 but less than or equal to the current budget year + 10. If the optional DURING is not specified, the default is the range of years from the current budget year to the current budget year + 10 for priveleged users, and the current budget year + 1 to the current budget year + 10 for non-privileged users.

C.2.3 ON

The ON statement is an optional modifier that directs output to a specified device. Its format is:

```
          -                              -
          ! TERMINAL or TERM             !
    ON    ! TEKTRONIX or TEK             !
          ! FILE qualifier*filename      !
          -                              -
```

The default value is TERMINAL. The output device, FILE qualifier*filename. is used with the PRINT statement, to write output into a file. The user must assign a file with the appropriate QUALIFIER and FILENAME, and the unit number 10 must be associated with the file, i.e. prior to the @CALL ILREP Command, the 2 UNIVAC commands,

```
@ASG,A QUALIFIER*FILENAME.
@USE 10,QUALIFIER*FILENAME.
```

must be entered.

once a user specifies the ON device, that device will remain in effect until the ON modifier is cleared (see CLEAR verb), or a new one is specified. If ON is cleared, the TERMINAL again becomes the output device.

C.2.4 PRINT/PLOT MODIFIERS

The PRINT and PLOT statements may optionally use many modifiers. Once a modifier is set it will remain in effect until the user either clears or respecifies it. For example MAIN=GNP is a plot modifier in the request:

```
PLOT V1: MAIN = GNP:
```

The above request would plot V1 against TIME (implied), and would plot the title GNP at the top of the graph.

DESCRIPTION	FORM	DEFAULT
(a) Titles and Labels		
-Main title	MAIN=S40:[1]	Blank
-Subtitle	SUBT=S40:	Blank
-(Y)X-axis labelling [2]	(Y)XLAB=S40:	Blank
-Curve labels	CLAB=S12,...,S12:[3]	Variable-names
-Legend labels	LEGN=S12,...,S12:	Variable-names
-Sublegend labels	SUBLEGN=S12,...,S12:	Variable-names
-Paging of legend text	PAGE LEGN=YES: or PAGE LEGN=NO:	YES
(b) Scaling Data		
-(Y)X-axis minimum	(Y)XMIN=N: [4]	Computed
-(Y)X-axis maximum	(Y)XMAX=N:	Computed
-(Y)X-axis number of divisions (intervals)	(Y)XDIV=N:	Computed
(c) Values at Tick Marks		
-(Y)X-axis values as integers	(Y)XINT=YES: or (Y)XINT=NO:	NO [5]
-(Y)X values printed at tick marks	(Y)XVAL=YES: or (Y)XVAL=NO:	YES
-(Y)X tick mark values replaced by alphanumeric data	(Y)XTXT=S6,...,S6:	Blank [10]
-X tick mark values centered beneath ticks	XCEN=YES: or XCEN=NO:	NO
(d) Continuous Curves, Dashed Lines, Individual Data Points and Vertical Line		
-Continuous Curve (connected data points with unbroken line)	CONT=YES: or CONT=NO: or CONT=S20: [6]	NO
-Dashed Lines - plot curve with dotted and dashed lines	DASHES=YES: or DASHES=NO:	YES (Tektronix) NO (Terminal)
-Dash Type Codes	DASH CODES=N,...,N:	1.,...,20.[8]
-Character Curve	CHAR=YES: or CHAR=NO: or CHAR=S20: [7]	YES (Terminal) NO (Tektronix)
-Character Interval (how many data points to skip between plotting characters at the (X,Y) locations)	CINT=N,...,N:	0.,...,0.

-Vertical Line (drawn to highest Y value at the X position specified by CTPT)	CTLN=YES: or CTLN=NO:	NO
-X axis position of vertical line	CTPT=N:	0.

(e) Axis and Tick Marks

-Plot of (Y)X axis	XGRI=YES: or XGRI=NO:	YES
-Plot of (Y)X tick marks	XTIC=YES: or XTIC=NO:	YES

(f) Histogram and Bar Charts

-Compute and plot one of more histograms from input data	HIST=YES: or HIST=NO:	NO
-Plot data in barchart format	BARG=YES: or BARG=NO:	NO
-Bar type codes	BAR CODES=N,...,N:	1.,...,16. [8]
-Number of intervals between bar groups	BAR SPACES=N:	0.
-Density of barfill,i.e. number of lines drawn within bars in X and Y direction	BAR DENSITY=X1,Y1, ...Xn,Yn: [9]	25.,25. ...25.,25.
-Base line location for bar charts or histograms	BASE=N:	0.

(g) Print of Data Values

-Print X,Y values in time series format with titles and labels.	LIST=YES: or LIST=NO:	YES(Plot) NO(Print)
-Print X,Y values in scatter list format	SLIST=YES: or SLIST=NO:	NO

(h) Transmission Speed

-Transmission and receive speed of terminal, used with Tektronix output to insure a sufficient time interval between hard copy of output and production of a new chart.	BAUD=300: or BAUD=1200:	1200

NOTES:

[1] Snn represents a character string of nn character maximum length.

[2] (Y) indicates that a modifier exists for the Y axis which performs the same function as described for X. The user must substitute the starting X with a Y to use the appropriate Y modifier.

[3] To specify some alphanumeric strings and indicate certain ones as blank, use the word BLANK in place of an actual character string where desired.

[4] N is a real number, N,...,N is a series of real numbers.

[5] If X-axis variable is time, the X values will be automatically printed in integer form.

[6] To specify some continuous and some individual data point curves Snn is used. A curve will be continuous if a 1 is placed in the position associated with that curve. For example, the second curve will be continuous if the clause CONT=01000: is entered on the plot statement.

[7] To alter the symbol table for character plotting from the standard (*+OX#ABDEFGHIJKLMNOP), CHAR=Snn: is used. Each character of the string will identify a curve.

[8] See Appendix XJ for the type of bar associated with each code from 1. to 16. and the types of dashed lines associated with codes 1. to 20..

[9] X1,Y1,...,Xn,Yn are real numbers specified in pairs to indicate bar fill density. Each pair refers to one bar type.

[10] If text is to be printed along the X-axis instead of numeric values, XVAL=NO: must be used in combination with XTXT=S6,...,S6:.

C.2.5 FINANCE

The FINANCE statement is an optional modifier for the DEFINE statement. Its format is:

FINANCE = (XXXn):

where XXXn indicates user selected financing plan for the IF run. If the user chooses this option a selection of finance plans are available. EPCn is the four letter code corresponding to the nth quarter financial plan of the current budget year used to generate the initial projection model for that quarter for the Executive Policy Committee (EPC).

Users can also create their own financial plans. If the latter decision is made, the user must supply the ILREP administrator with a file containing finance runstreams in elements for each year for which IF is to be run. These elements will be copied into a master file and the user will be given a unique four letter code which will identify them. In building a financing section, the user should begin answering the sequence of IF questions in the same place as the finance questions used in the initial projections model. The sequence of answers must be in the order IF expects. Each of the elements must end at the same point as the default elements, used in the base model. See the ILREP administrator if you wish to create a finance stream.

If no FINANCE option is chosen, a default financing section will be loaded. It will correspond to the finance portion of the initial projection model for the current quarter of the year.

C.2.6 BUDGET

The BUDGET statement is an optional modifier for the DEFINE statement. Its format is:

BUDGET = (YYXXXn):

YY are the last two digits of the current budget year or the year following the current budget year, depending on whether the user wishes to start the Interactive Financial Model run with the current budget year data as the base data, or the year following the current budget year data as the base. XXX is a three letter code indicating the budget data and the IF runstream desired. The letter 'n' represents the quarter of the current budget year for which data and an initial projections IF runstream is desired.

If the budget option is not specified the current quarter forecasts of the current budget year data will be loaded and the IF run which generated the current quarter initial projections model will be executed if a GO command is issued.

The initial projections and financial objectives models for the nth quarter of the YY budget year are generated using the BUDGET modifier YYEPCn. Those models are named YYPROJn and YYOBJn, respectively.

For non-privileged users data will be made available starting one year after the budget year, except for computed variables which are built up from (t-1) values, which will be available two years after the budget year.

C.2.7 WITH HISTORICAL

The WITH HISTORICAL statement is an optional modifier for the PRINT, PLOT, COMPUTE, and INPUT commands. Its format is:

```
WITH HISTORICAL:
    or
WITH HIST:
```

When this modifier is used, data will be printed, plotted, computed or input starting with 1960, through to the last forecasted year.

NOTE: *See Appendix XA.7 for a list of the variables which have historical data loaded.

C.2.8 FROM

The FROM statement is an optional modifier for the DEFINE command. Its format is:

FROM (QUALIFIER*FILENAME):

where QUALIFIER is the qualifier used when the file, FILENAME, was catalogued, and FILENAME is the output file of an IF model run external to ILREP. The IF model must have been run using DDMODEL14, and it must have been run for no more than 11 years.

This modifier is helpful for a user who wishes to apply the PRINT, PLOT and COMPUTE commands in ILREP to models generated using IF as a stand-alone system.

C.2.9 FORMAT

The FORMAT modifier is optional and is used with the PRINT verb. Its format is:

```
FORMAT (format):
```

where (format) is a legal FORTRAN format statement which will be applied to the variable(s) printed. (Parentheses must surround the format statement.) If output is directed to the terminal, the first field in the format statement is applied to the integer value of TIME, and thus should be expressed as an integer format specification. If the output is to be a data file, (ON FILE modifier must be used), the format statement must specify all floating point values.

If no FORMAT modifier is used, the format of a print to terminal is:

```
(1H I4,2X,4(1X,F15.5))
```

and to an output file it is:

```
(4(1X,F15.5)).
```

The default FORMAT has the important feature that any digits to the right of the eight most significant ones are zero/filled.

C.3.1 EXPLAIN

This command explains specific parts of the language and data. It has the form:

EXPLAIN (object):

where object can be any one of the language or data components (verbs, objects, modifiers, variable names,etc.)

The first time a user is at the terminal, a request, such as:

EXPLAIN EXPLAIN:

could be issued for the explanation of the EXPLAIN command. This explanation will be printed at the terminal. the user would then choose, in all probability to enter either:

EXPLAIN VOCABULARY:

or

EXPLAIN VARIABLES:

or

EXPLAIN LIST:

in which case a complete list of the language vocabulary, (for which he could then request more specific information) or a complete list of variable names or a list of the remaining EXPLAIN objects would be printed at the terminal.*

Note: *See Appendix XF for a complete list of the language vocabulary.
See appendix XA for a complete list of variable names.
See appendix XG for complete list of EXPLAIN objects.

C.3.2 DEFINE

Either DEFINE or RESTORE must be specified before any other verb, except EXPLAIN, ECHO or STOP. The DEFINE format is:

DEFINE (MODEL-NAME):

where MODEL-NAME is the user-specified name of up to 12 characters by which the model may later be saved or restored.

If a model was previously defined with the same name, an error message will be returned. The user may answer YES to reuse the MODEL-NAME. Otherwise, the answer NO must be entered in which case the model must be redefined.

DEFINE may be modified by the DURING, INDEP, FINANCE, BUDGET and FROM modifiers. If the DURING statement is not entered, the default time span is from current budget year to the current budget year + 10. (Non-privileged users, will start with the current budget year + 1) The INDEP defaults are REV,CON. If the BUDGET and FINANCE modifiers are not entered, certain defaults are assumed. The budget forecasts for the current quarter of the current budget year are loaded and the IF runstream used to generate the current quarter initial projections model, (YYPROJn), is chosen if the user requests a run of IF. In addition, the financial plan default is the plan used to create the current quarter initial projections model. To load any other budget forecast data base and corresponding IF runstream, the correct BUDGET and FINANCE modifiers must be used on the DEFINE statement. For example, to load the 1st quarter data and IF runstream in the 2nd quarter of 1975, the user must enter the statement:

DEFINE MODEL-NAME:BUDGET=75EPC1:FINANCE=EPC1:

the user may alter the values of the variables from their initial defaults using the INPUT statement or these default values can be used directly to SOLVE for the variables needed by the Interactive Financial Model (IF) to produce an income statement.

C.3.3 RESTORE

The RESTORE command allows the user to retrieve models which have been DEFINEd and SAVEd in previous runs or have been created by the ILREP group in Corporate Planning at AT&T as reference models.* A user created model can be RESTOREd only if the same ID/PASSWORD is entered as was employed when the model was SAVEd. In addition, a RESTORE request must contain the correct spelling of the MODEL-NAME, i.e. the same alphanumeric string which was used when the model was originally defined and SAVEd. If a reference model created by the ILREP group is RESTOREd, the MODEL-NAME identifies it completely. The format for RESTORE is:

```
RESTORE (MODEL-NAME):
```

It is possible to sequentially RESTORE any number of models in the same ILREP session. The primary model (the first model RESTOREd or DEFINEd) will contain all the data in the ILREP data base. Secondary models, (any RESTOREd after the first model is brought in through either a DEFINE or RESTORE command), will load 50 data series, selected on the basis of frequency of use in comparing models.** The primary model is never overwritten. Secondary models are successively replaced. Each model which is RESTOREd overwrites the preceding one. Only two models are simultaneously resident in core. The COMPUTE verb enables a user to save series from sequentially RESTOREd models, so that even though only two models are available at the same time, 20 computed variables can be used to store selected series from a number of models.

The first time a restore command is entered the system will respond with:

```
MODEL BEING RESTORED
RESTORING MODEL  MODEL-NAME      DURING   YR1-  YR2 INDEP V1   -V2
BUDGET           FINANCING       CREATED  (day) (month) (year) (time)
```

additional RESTORE requests will produce a system response of:

```
MODEL$ BEING RESTORED
RESTORING MODEL  MODEL-NAME      DURING   YR1-  YR2 INDEP V1   -V2
BUDGET           FINANCING       CREATED  (DAY) (MONTH) (YEAR) (TIME)
```

All variables loaded in secondary models must be referenced by the original name and an appended $ sign. For example:

```
PRINT TOTREV,TOTREV$:
```

will print TOTREV for the primary model followed by TOTREV for the secondary model. A RESTORE request following a DEFINE statement will

load a secondary model.

Variables which have been restored can be printed and plotted and new variables can be computed from them, but they cannot be rerun through IF.

NOTE: *See Appendix XC for a list and description of reference models.

**See APPENDIX XA.6 for the names and a description of the 50 data series loaded for secondary models. Note that when the Data Management System (DMS) is implemented, the 50 variable restriction, currently based on core limitations, will be lifted. If a user wishes to load a first quarter 1975 model, it must be loaded as a secondary model since the core layout was altered after these models were created. The primary model loaded must be a model created after the first quarter of 1975.

C.3.4 STOP

The STOP statement ends a user's terminal session. It has the form:

STOP:

If the user wishes to save the ILREP session a SAVE command prior to the STOP statement is needed.

If the user does not use the SAVE command the STOP command produces a question of whether the model is to be saved. The answer may be YES or NO. An answer NO will cause ILREP to delete the model, if it is user-created.

C.3.5 PRINT

The PRINT statement outputs data values for up to 20 variables. Its format is:

```
PRINT (V1) [,(V2)...,(VN)]:
```

PRINT may be optionally modified by the DURING, ON, FORMAT, WITH HISTORICAL and PRINT/PLOT modifiers. If the DURING statement is not specified, the data values will be printed over the time period of the primary model. the ON default is TERMINAL, which is the usual output device for PRINTING. If the user wishes to PRINT on the tektronix, the ON TEK: clause is needed. Historical data will be printed only if the WITH HISTORICAL: clause is chosen.

The PRINT/PLOT modifiers which apply to the PRINT verb are: LIST,MAIN,SUBT,YLAB,LEGN,SUBLEGN and BAUD. By setting LIST=YES: and defining the labelling modifiers, the text output will be:

```
                MAIN
                SUBT
                YLAB

YEARS            LEGN1    ...          LEGN4
              SUBLEGN1                SUBLEGN4

                  rather than

TIME              V1        ...          V4
```

i.e., extended titling capability is available. Instead of the variable name being printed above the column of data to which it applies, up to 24 characters of text can be printed by using the LEGN and SUBLEGN modifiers.

IF a PLOT request has been made prior to the PRINT request and the titling information has been selected for plotting, the PRINT command will make use of this text if the user sets LIST=YES: on the PRINT statement or if LIST=YES: was set on a preceding PRINT or PLOT statement.

In order to output data to a file, the ON modifier must be used and the FORMAT modifier can be used with the PRINT statement. For example:

```
PRINT V1,V2,V3:ON FILE CPM*OUTPUT:FORMAT (3F10.2):
```

combined with two UNIVAC commands preceding the @CALL ILREP:

```
@ASG,T CPM*OUTPUT.
@USE 10,CPM*OUTPUT.
```

will output to file CPM*OUTPUT. as many records as the DURING and WITH

HISTORICAL modifiers indicate, with three values per record (V1,V2, and V3), in the format 3F10.2. No text will be output into the file. PRINT statements can be requested at any time in the terminal session. Each time the ON FILE modifier is used, a blank record will be output to the file, (except for the first set of data), prior to writing new data series into it. The default FORMAT is 4(1X,F15.5), which has the special feature that any digits to the right of the eight most significant ones are zero-filled.

Since ILREP numbers are computed in single precision, to save space, numbers are accurate for the eight most significant digits. Therefore, the digits to the right of the eight most significant digits are printed as zeroes.

Except for data output to a file, data which is missing and is entered in the data base as -99999. will be printed as NOT AVAILABLE and data which has been entered using the D feature of the INPUT command will be printed as IF DEFAULT. See INPUT section for a description of the D feature.

C.3.6 PLOT

The PLOT statement displays one or more variables versus another.

PLOT (V1) [,(V2),...,] [.VS. (VN)]:

A maximum of 20 curves may be plotted on one graph. The variables preceeding the .VS. are y-axis series. The variable following the .VS. is the x-axis data against which the y-axis series are plotted.

PLOT TOTREV:

examples PLOT TOTREV .VS. TIME:

PLOT TOTREV, TOTEXP .VS. TIME:

In the first example, TIME is assumed for the x-axis variable.

to plot multiple y-axis series against multiple x-axis series, on the same graph the PLOT format is:

PLOT (VA1)[,(VA2),...,] .VS. (VAN) .AND. (VB1) [,(VB2),...] .VS. (VBM):

example PLOT RORCEQAVGATT .VS. CEQ .AND. RORATC .VS. TOTCAP:

The PLOT statement may optionally be modified by the DURING, ON, WITH HISTORICAL and PRINT/PLOT modifiers. The DURING modifier is set to that of the primary model as a default. The ON modifier is set to TERMINAL as the default value. Once a user decides on a different output device, that device will remain in effect until the user changes it. No historical data is plotted unless the WITH HISTORICAL modifier is requested. The PRINT/PLOT modifier, LIST, is automatically set equal to YES for plotting, so that a printout of the data series follows the graphical output with the same titling information as the plot displays. The LIST modifier is reset to NO after the data series are printed. Each of the PRINT/PLOT modifiers will remain in effect until explicitly cleared or respecified.

Data which is unavailable and is entered into the data base as -99999. or data which has been entered using the INPUT IF default feature, will not be plotted. See INPUT section for more information on the IF default feature.

If the user does not specify curve label information by using either CLAB or LEGN, the variable names will be used to identify the curves. Dashed lines will be displayed for each curve and the labels will be printed on the legend page, next to the dashed line corresponding to the appropriate curve. These labels will also be printed above the data series.

C.3.7 CLEAR

The CLEAR command allows the user to reset a modifier to its default value. It has the form:

CLEAR (object):

where object can be ON, PLOT, or any of the PRINT/PLOT modifiers. The word PLOT clears all the PLOT modifiers.*

NOTE: *See the appropriate MODIFIER section for the modifier's default value.

C.3.8 INPUT

The format of the INPUT command is:

INPUT [(OPTION)] (VARIABLE-NAME):

This command allows the user, by entering input variable-name: to replace all of the default values of any partial or total variable* within the time span of the define statement used to initialize the Model. The optional [DURING] clause will redefine the time span for this input only. When the [WITH HISTORICAL] clause is chosen, the input changes are applied to both The historical and forecasted parts of the series separately. [WITH HISTORICAL] can be used with any of the INPUT options described below except [COMPOUND].

If INPUT VARIABLE-NAME: is entered, without an [OPTION], the user will be prompted one year at a time to provide replacement values for the variable specified. All numerical input* must contain decimal points and the user should match the new data with the units used for the default value. Units can be determined by using the PRINT command.

The options available to the user are DELTA, PERCENT and COMPOUND.

If the option [DELTA] is used the user will again be prompted one year at a time to input an incremental value (positive or negative) for the specified variable.

If the option [PERCENT] is chosen the user will be asked if the percent is to be applied to the entire span. A reply of

YES - prompts the user to supply a number from .1 to 1.9 to represent a percent increment from -90% to +90% that will be applied to the entire span.

NO - prompts the user to supply a list of numbers from .1 to 1.9 to represent a percent increment from -90% to +90% that will be applied to each corresponding year.

IF the option [COMPOUND] is used the user will be asked to supply a number from .1 to 1.9 to represent an inflation or growth rate that will be applied to the entire forecasted span as indicated in the following equation:

New Value=Old Value*Inflation or Growth Rate**(Year-Current Budget Year)

With the exception of INPUT COMPOUND the following non numerical responses are also acceptable

Carriage Return - this will keep the data value currently in the series for the year specified.

D - This will provide a default option in the IF runstream for the variable in the year specified.

Numerical replies, carriage returns, and D'S can be applied to a series in any combination.

It should be noted that certain variables are designated as 'subtotals'. These are values such as TOTAL MAINTENANCE EXPENSES which are themselves made up of partials (MAINTENANCE WAGE + NONWAGE EXPENSES) and are used to build larger totals (TOTAL OPERATING EXPENSES LESS DEPRECIATION). Due to the nature of the model it is not possible for these to be altered directly using INPUT. Should the user try a command that attempts to change any of these a warning message will appear and the system will wait for another request.

If a partial variable that is used in the computation of a total value is altered, the user will then not be allowed to alter the total. Similarly, if a total variable is changed, and it is made up of partials, the user will not be permitted to change the partials. Both these situations will generate diagnostic warnings and the system will again wait for another request.

The user should also note that he or she is responsible for determining those variables for which a request of an IF default makes any sense and those variables for which such a request will cause computation conflict within the IF model. For example, on a run with REVENUE and CONSTRUCTION as the independent variables, it is impossible to default on TOTAL REVENUES, TOTAL CONSTRUCTION or TOTAL EXPENSES LESS DEPRECIATION.

**See Appendix XA.3 and XA.4 for a list of partial and total variable names.

C.3.9 COMPUTE

The compute command has the form:

COMPUTE (VARIABLE-NAME)=(F)((V1),(V2)):

It can be optionally modified by the DURING and WITH HISTORICAL modifiers.

The words VARIABLE-NAME, F, V1 and V2 should be replaced by user selected names and functions. The outer parentheses around (V1),(V2) must truly be used in the request.

The functions (represented by (F) in the above statement) which are available are SUM, DIFF, PROD, RATIO, EXP, ABS, POWER, SERIES, CONSTANT, LOGE, LOG10, GROWTH, PCTCHG, ADJUST, SHORTFALL, and PCTSHORTFALL. The computed result is stored in a new variable, VARIABLE-NAME,* which is a name with a maximum length of 12 characters, chosen by the user.

SUM, DIFF, PROD, RATIO compute the sum, difference, product, and ratio, respectively, of two variables. For example, SUM calculates the sum for each year T, by:

VARIABLE-NAME(T) = V1(T) + V2(T)

EXP sets one variable equal to the exponential version of another.

ABS sets one variable equal to the absolute value of another.

POWER raises V1 to the power of V2.

SERIES sets one variable equal to another over the defined time period.

CONSTANT sets one variable equal to a specified constant over the period defined by the WITH HISTORICAL and DURING modifiers. For example,

COMPUTE VARIABLE-NAME = CONSTANT(100.):DURING 1982-1984:WITH HISTORICAL:

will set each of the historical years equal to 100. as well as the three years 1982, 1983, and 1984 for VARIABLE-NAME. The values for the first forecast years, up to 1981, and the last forecast years will be zero filled.

LOGE, LOG10 compute the log to the base E and the log to the base 10, respectively of the input series, and store it in VARIABLE-NAME.

GROWTH computes a growth rate for variable V1 using the formula:

VARIABLE-NAME(T) = ((V1(T) - V1(T-1))/V1(T-1))*100.0

PCTCHG computes the percent difference between two variables for each year. The formula used is:

```
VARIABLE-NAME(T) = ((V2(T) - V1(T))/V1(T))*100.0
```

ADJUST adjusts a series for inflation. The formula depends on whether the variable is flow, stock, or flow/stock.**

V2 is a deflator series (such as CPI) chosen by the user.

A flow variable is computed by:

```
VARIABLE-NAME(T) = V1(T)/V2(T)
```

A stock variable is computed by:

```
ADJV1(T) = ADJV1(T-1) + (UNJV1(T)-UNJV1(T-1))/V2(T)
       and
VARIABLE-NAME(T)=ADJV1(T)
```

In the above equation ADJV1 represents the adjusted value of V1 and UNJV1 represents the unadjusted value of V1.

Each flow/stock variable is computed from a specific equation.*** For example,
if V1 = RORATC = INCBDEITR/TOTCAPAVG.

The numerator is computed as a flow variable by:

```
A(T) = INCBDEITR(T)/V2(T)
```

The denominator is computed as a stock variable by:

```
ADJTOTCAPAVG(T) = ADJTOTCAPAVG(T-1) +
                  (UNJTOTCAPAVG(T)-UNJTOTCAPAVG(T-1))/V2(T)

                and

B(T) = ADJTOTCAPAVG(T)
```

Flow/Stock is finally computed by

```
VARIABLE-NAME(T) = A(T)/B(T)
```

SHORTFALL computes shortfall between two variables for each year, i.e.:

```
VARIABLE-NAME(T) = V1(T)-V2(T)*(V1(T-1)/V2(T-1))
```

PCTSHORTFALL computes percent shortfall between two variables for each year, i.e.:

VARIABLE-NAME(T) = 100.*((V1(T)*V2(T-1))/(V2(T)*V1(T-1)-1.0)

Computed variables can be printed and plotted.

twenty computed variables will be saved. If the user requests an additional computed variable, the model will respond with

DO YOU WISH TO OVERWRITE THE COMPUTED VARIABLES

If the user answers NO, the results of the computation will be stored in a variable named TEMP.

If the user answers YES, the table will be overwritten, starting with the first variable computed. For each new variable computed, the next variable in the computed variable table will be overwritten.

The user may answer with a carriage return in which case the system will await another request, and no data will be overwritten.

If a computation is requested using an output variable name which already exists the system responds with:

COMPUTED VARIABLE NAME IS NOT UNIQUE

DO YOU WISH TO OVERWRITE THE VARIABLE

If the user answers NO, the results of the computation will be stored in the variable TEMP and if the response is YES, the values in the variable will be overwritten. If the user would like to make another request, rather than overwrite either a computed variable or TEMP, a carriage return should be entered as the answer.

If computed variables are calculated for historical as well as forecasted years, ILREP creates an internal name for the historical portion of the series. Naming conflicts can occur unless the user is aware of how these historical names are chosen. For example:

COMPUTE V1=SERIES(TOTREV):WITH HISTORICAL:

will load a variable V1 with the forecasted portion of TOTREV, and VH with the historical portion of TOTREV. The last character of the computed variable name is replaced with an H to indicate historical data. Consequently, if the user later requests:

COMPUTE V2=SERIES(EPC):WITH HISTORICAL:

the historical portion of this calculation will also be called VH and the historical EPS series will overwrite the historical TOTREV data which was originally placed in VH. Users should name computed variables in a manner which avoids this conflict.

NOTE: *A variable TEMP is always available to store computed values in. This variable is available when the user does not wish to add to the computed variable table which allows only 20 computed variable names.

**A complete list of stock and flow/stock variables available in ILREP is in Appendix XA.5.

***A complete list of equations to compute the flow/stock variables is in Appendix XB.2.

C.3.10 SOLVE

The format of the SOLVE statement is:

SOLVE:

SOLVE starts the solution of a set of accounting equations which compute the variable totals and subtotals that have been changed through any of the INPUT commands.*

NOTE: *See Appendix XB.1 for a list of the SOLVE solution set.

C.3.11 SAVE

The SAVE command will store the current model on disk, so that the user can RESTORE it during a subsequent ILREP session. The form of the save command is:

SAVE:

The model is saved in a file named CORE*MODEL-NAME., where MODEL-NAME is the name indicated on the DEFINE statement.

computed variables are not SAVEd.

C.3.12 GO

The format of the GO statement is:

GO:

The GO statement generates an Interactive Financial Model runstream and initiates an IF run.*

The independent variables specified in the DEFINE command are those independent variables input to the Interactive Financial Model. The DURING and BUDGET modifiers of the DEFINE statement determine the time span for IF. The BUDGET and FINANCE modifiers determine the base year input and the financial model to be run. If none of these options are specified on the DEFINE statement, defaults will be automatically selected for each. See the INDEP, DURING, BUDGET and FINANCE sections to learn what these defaults are.

Prior to entering the GO command, the user must exercise the SOLVE statement, which will solve all variable totals and subtotals that have been changed through the INPUT command.

NOTE: *'IF' is the mnemonic for the Interactive Financial Model.

C.3.13 ECHO

ECHO alternately turns on and turns off printing of each user command as it is executed from either the terminal or an addstream. Its format is:

```
ECHO[=]YES:
   or
ECHO[=]NO:
```

The default for ECHO is NO.

D. Interactive Financial Model Options Used in ILREP

The Interactive Financial Model version used by ILREP is the January 1, 1975 version, used for all presentation preparation including and after the Spring 1975 Presidents Conference. For those users familiar with the IF model it is the one identified as DDMODEL14.

IF is executed for the Total Bell System with forecasts beginning one year after the base year. The base year is either the current budget year or the one following it and is determined by the user in the BUDGET clause of the DEFINE statement. If the BUDGET clause is omitted, the base values are those of the current budget year.

For a full description of the IF Model please see the Interactive Financial Model Documentation.

Appendix XA

List of Variables

Variable Names and Description (Names in Alphabetical Order)	Appendix XA.1
Variable Names and Description (Description in Alphabetical Order)	Appendix XA.2
List of Partials, Subtotals, Totals, IF Input, Report and IF Output Variables	Appendix XA.3
Detailed List of IF Input	Appendix XA.4
List of Stock and Flow/Stock Variables	Appendix XA.5
List of Variables Loaded In Second Restored Model	Appendix XA.6
List of Variables Loaded With Historic Values	Appendix XA.7

NOTE: When YY appears at the end of a variable name, the user must substitute the last 2 digits of the current budget year, with the exception of the series ADJSSRDYY and UDJSSRDYY, where YY are the last 2 digits of the year prior to the current budget year, since those series represent the year prior adjusted and unadjusted values of the stock series available in ILREP.

APPENDIX XA.1

VARIABLE NAMES AND DESCRIPTION

(NAMES IN ALPHABETICAL ORDER)

ABDCLSDIR	CALLS-AVERAGE BUSINESS DAY DIRECTORY
ABDCLSOPHINT	CALLS-AVG BUS DAY OP HANDLED INTERSTATE
ABDCLSOPHOTH	CALLS-AVG BUS DAY OP HANDLED OTHER
ABDCLSOPHTSP	CALLS-AVG BUS DAY OP HANDLED TRAF SERV POS
ABDCLSTLA	CALLS-AVG BUS DAY TOLL & LOCAL ASSIST
ABDWUS	WORK UNITS-AVERAGE BUSINESS DAY
ACCEMP	EMPLOYEES-ACCOUNTING DEPT.
ACCEXP	EXPENSES-ACCOUNTING DEPT.
ACCEXPNWG	EXPENSES-ACCOUNTING DEPT. (NON WAGE)
ACCEXPWAG	EXPENSES-ACCOUNTING DEPT. (WAGES)
ACCWAGEMPRTO	WAGES PER EMPLOYEE-ACCOUNTING DEPT
*ADDDPT	DEPRECIABLE PLANT-ADDITIONS TO
ADJSSRDYY	STOCK SERIES-ADJUSTED VALUES FOR 19YY
ADVEXP	EXPENSES-ADVERTISING DEPT.
APRMIN	AGGREGATE PAYOUT RATIO FOR MINORITY INTEREST
ATTCEQAVG	EQUITY-AVERAGE AT&T COMMON
*ATTCEQSLD	EQUITY-AT&T COMMON SOLD
ATTEQT	EQUITY-AT&T
ATTEQTPCT	EQUITY-PERCENT AT&T
*AVGCEQ	EQUITY-AVERAGE COMMON
BNDRET	DEBT RETIRED AND REFINANCED-BOND RETIREMENTS
BOFEMP	EMPLOYEES-BUSINESS OFFICE
BOFEXPWAG	EXPENSES-BUSINESS OFFICE (WAGES)
BOFWAGEMPRTO	WAGES PER EMPLOYEE-BUSINESS OFFICE
BVS	BOOK VALUE PER SHARE(EOY)
*BVSAVG	BOOK VALUE PER SHARE-AVERAGE
CAPTAX	TAXES-CAPITAL STOCK
CAPTAXRAT	TAXES-CAPITAL STOCK TAX RATE
*CEQ	EQUITY-COMMON
CEQSLD	EQUITY-COMMON SOLD
CFLATCRTO	CASH FLOW/AVERAGE TOTAL CAPITAL
CFTEMP	EMPLOYEES-CRAFT
CMKEXP	EXPENSES-COMMERCIAL AND MARKETING DEPT.
CMNDIV	DIVIDENDS-COMMON
CMVCONDYY	CONSTRUCTION-CUSTOMER MOVEMENT AT 19YY PRICES
COBCONFRC	CENTRAL OFFICE BUILDINGS-FRACTION OF CONSTRUCTION
COBDPT	DEPRECIABLE PLANT-CENTRAL OFFICE BUILDINGS
COECONDYY	CONSTRUCTION-CENTRAL OFFICE EQUIPMENT AT 19YY PRICES
COECONFRC	CENTRAL OFFICE EQUIPMENT-FRACTION OF CONSTRUCTION
COEDPT	DEPRECIABLE PLANT-CENTRAL OFFICE EQUIPMENT
COEEXP	EXPENSES-CENTRAL OFFICE
COEEXPNWG	EXPENSES-CENTRAL OFFICE (NON WAGE)
COEEXPWAG	EXPENSES-CENTRAL OFFICE (WAGE)

COEPLT	PLANT-CENTRAL OFFICE EQUIPMENT
COERET	RETIREMENTS-CENTRAL OFFICE EQUIPMENT
COEWAGPHR	WAGES/HOUR-CENTRAL OFFICE
COEWUS	WORK UNITS-CENTRAL OFFICE
COEWUSPHR	WORK UNITS/HOUR-CENTRAL OFFICE
COMEMP	EMPLOYEES-COMMERCIAL DEPT.
COMEXP	EXPENSES-COMMERCIAL DEPT.
COMEXPNWG	EXPENSES-COMMERCIAL DEPT. (NON WAGE)
COMEXPWAG	EXPENSES-COMMERCIAL DEPT. (WAGES)
CPI	US CONSUMER PRICE INDEX
*DBTRTOACH	DEBT RATIO ACHIEVED
DBTRTOOBJ	DEBT RATIO OBJECTIVE
*DEFTAX	TAXES-DEFERRED AD-ADR
DEFTAXACU	TAXES-ACCUMULATED DEFERRED
DIRCLSWUSPMS	WORK UNITS/MESSAGE-DIRECTORY CALLS
DIREMP	EMPLOYEES-DIRECTORY DEPT.
DIREXP	EXPENSES-DIRECTORY
DIREXPNWG	EXPENSES-DIRECTORY (NON WAGE)
DIREXPWAG	EXPENSES-DIRECTORY (WAGES)
DIRREV	REVENUES-DIRECTORY
DIRWAGEMPRTO	WAGES PER EMPLOYEE-DIRECTORY
DIVMIN	DIVIDENDS PAID TO MINORITY INTEREST
*DPSCMN	DIVIDENDS-COMMON PER SHARE
DSCEQT	EQUITY-DISCOUNT FROM MARKET PRICE AT WHICH SOLD
DSTCONFRC	DISTRIBUTION PLANT-FRACTION OF CONSTRUCTION
DSTDPT	DEPRECIABLE PLANT-DISTRIBUTION PLANT
DSTPLT	PLANT-DISTRIBUTION PLANT
DSTRET	RETIREMENTS-DISTRIBUTION PLANT
ENGEMP	EMPLOYEES-ENGINEERING DEPT.
ENGEXP	EXPENSES-ENGINEERING DEPT.
ENGEXPNWG	EXPENSES-ENGINEERING DEPT. (NON WAGE)
ENGEXPWAG	EXPENSES-ENGINEERING DEPT. (WAGES)
*EPS	EARNINGS PER SHARE
*EPSFDL	EARNINGS PER SHARE(FULLY DILUTED)
EQMTEL	TELEPHONES-EQUIVALENT MAIN
EQMTGN	TELEPHONE GAIN-EQUIVALENT MAIN
EXPCHGCON	EXPENSES CHARGED TO CONSTRUCTION
*FITTAX	TAXES-FEDERAL INCOME
FITTAXIDX	TAXES-FEDERAL INCOME INDEX
FITTAXRAT	TAXES-FEDERAL INCOME RATE
FRCDBTHY1	DEBT-FRACTION SOLD IN 1ST HALF YEAR
FRCDBTLTMHY1	DEBT-FRACTION OF LONG TERM SOLD IN 1ST HALF YEAR
FRCTAXCDTAMR	TAX CREDIT-FRACTION OF AVG TAX CREDIT RESERVE AMORTIZED
FRCTAXCDTREL	TAX CREDIT-FRACTION OF CONSTRUCTION REALIZED AS TAX CREDIT
FRNCONFRC	FURNITURE-FRACTION OF CONSTRUCTION
FRNDPT	DEPRECIABLE PLANT-FURNITURE
GENCONDYY	CONSTRUCTION-GENERAL AT 19YY PRICES
GEQPLT	PLANT-GENERAL EQUIPMENT
GEQRET	RETIREMENTS-GENERAL EQUIPMENT
GOFEMP	EMPLOYEES-GENERAL OFFICE DEPT.

GOFEXP	EXPENSES-GENERAL OFFICE
GOFEXPNWG	EXPENSES-GENERAL OFFICE (NON WAGE)
GOFEXPWAG	EXPENSES-GENERAL OFFICE (WAGES)
GROCONDYY	CONSTRUCTION-GROWTH AT 19YY PRICES
*GRSPLT	PLANT-GROSS PLANT
GRSTAX	TAXES-GROSS RECEIPTS
GRSTAXRAT	TAXES-GROSS RECIEPTS TAX RATE
ICR	INVESTMENT CREDIT RESERVE
*INCBDEITR	INCOME BEFORE INTEREST DEDUCTION
INCMIN	INCOME ATTRIB. TO MINORITY INTERESTS
INTCLSWUSPMS	WORK UNITS/MESSAGE-INTERSTATE CALLS
ITR	INTEREST
*ITRCON	INTEREST DURING CONSTRUCTION
ITRCOVPAT	INTEREST COVERAGE-PRE TAX
ITRCOVPST	INTEREST COVERAGE-POST TAX
ITRIDCRAT	INTEREST RATE FOR IDC
*ITRLTMRAT	INTEREST RATE-LONG TERM(YLD ON NEW AAU ISSUES)
ITRPOF	INTEREST EARNED ON POOL OF FUNDS
*ITRSTMRAT	INTEREST RATE-SHORT TERM (3 MONTH TREAS BILL RATE)
LCLREV	REVENUES-LOCAL
LCLREVDYY	REVENUES-LOCAL AT 19YY RATES
LCLREVIDX	REVENUES-LOCAL PRICE INDEX
LDBCONDYY	CONSTRUCTION-LAND AND BUILDINGS AT 19YY PRICES
LDBPLT	PLANT-LAND & BUILDINGS
LDBRET	RETIREMENTS-LAND & BUILDINGS
LODIDX	LOAD INDEX
LRTACH	LOAN RATIO ACHIEVED
LRTOBJ	LOAN RATIO OBJECTIVE
LTMDBT	DEBT-LONG TERM
LTMDBTPCT	DEBT-PERCENT LONG TERM
LTMDBTSLD	DEBT-LONG TERM SOLD
MANTEL	TELEPHONES-MAIN
MANTGN	TELEPHONE GAIN-MAIN
MBR	MARKET/BOOK RATIO
MINEQT	EQUITY-MINORITY
MINEQTPCT	EQUITY-PERCENT MINORITY
MINEQTSLD	EQUITY-SOLD TO MINORITY SHAREHOLDERS
MKTEMP	EMPLOYEES-MARKETING DEPT.
MKTEXP	EXPENSES-MARKETING DEPT.
MKTEXPNWG	EXPENSES-MARKETING DEPT. (NON WAGE)
MKTEXPWAG	EXPENSES-MARKETING DEPT. (WAGES)
*MKTPCESHR	STOCK-MARKET PRICE PER SHARE
MKTWAGEMPRTO	WAGES PER EMPLOYEE-MARKETING DEPT.
MNTEMP	*EMPLOYEES-MAINTENANCE (MTCEMP)
MODCONDYY	CONSTRUCTION-MODERNIZATION AT 19YY PRICES
MSCINCOTH	INCOME-MISC. OTHER (NET OF DEDUCTIONS)
MSCOTHRES	RESOURCES-MISCELLANEOUS OTHER (NET)
MSCREV	REVENUES-MISCELLANEOUS
MSCREVDYY	REVENUES-MISCELLANEOUS AT 19YY RATES
MSCREVIDX	REVENUES-MISCELLANEOUS PRICE INDEX

MTCEMP	EMPLOYEES-MAINTENANCE DEPT.
MTCEXP	EXPENSES-MAINTENANCE
MTCEXPNWG	EXPENSES-MAINTENANCE (NON WAGE)
MTCEXPWAG	EXPENSES-MAINTENANCE (WAGES)
MTCWAGPHR	WAGES/HOUR-MAINTENANCE
MVHCONFRC	MOTOR VEHICLES-FRACTION OF CONSTRUCTION
MVHDPT	DEPRECIABLE PLANT-MOTOR VEHICLES
NBOEMP	EMPLOYEES-NON BUSINESS OFFICE
NBOEXPWAG	EXPENSES-NON BUSINESS OFFICE (WAGES)
NBOWAGEMPRTO	WAGES PER EMPLOYEE-NON BUSINESS OFFICE
NCSINV	INVESTMENT IN NON CONSOLIDATED SUBSIDIARIES
NCSINVCHG	INVESTMENT CHANGE IN NON CONSOLIDATED SUBSIDIARIES
NETDBTSTMCHG	DEBT-NET CHANGE IN SHORT TERM
NETDED	DEDUCTIONS-NET (INCL. TAXES)
NETOTHRES	RESOURCES-NET OTHER (TAX DEFERRALS, CREDITS)
*NETPLT	PLANT-NET
NEWDBTLTM	DEBT-NEW LONG TERM
*NEWMONCON	NEW MONEY TO CONSTRUCTION
*NEWMONREQ	REVENUE REQUIREMENTS-NEW MONEY REQUIREMENTS
*NEWOPRRTO	OPERATING RATIO-NEW
*NEWSHRCMNSLD	STOCK-NEW COMMON SHARES SOLD
*NOR	REVENUES-NET OPERATING
ODPEMP	EMPLOYEES-OTHER DEPARTMENTS
ODPEXP	EXPENSES-OTHER DEPARTMENTS
ODPEXPNWG	EXPENSES-OTHER DEPARTMENTS (NON WAGE)
ODPEXPWAG	EXPENSES-OTHER DEPARTMENTS (WAGES)
ODPWAGEMPRTO	WAGES PER EMPLOYEE-OTHER DEPARTMENTS
OPREXPTRN	EXPENSES-TRAFFIC DEPT. OPERATOR TRAINING
OPREXPWAG	EXPENSES-TRAFFIC DEPT. OPERATORS (WAGES)
OPRWAGPHR	WAGES/HOUR OPERATORS
OSPCONDYY	CONSTRUCTION-OUTSIDE PLANT AT 19YY PRICES
OSPEXP	EXPENSES-OUTSIDE PLANT
OSPEXPNWG	EXPENSES-OUTSIDE PLANT (NON WAGE)
OSPEXPWAG	EXPENSES-OUTSIDE PLANT (WAGES)
OSPWAGPHR	WAGES/HOUR-OUTSIDE PLANT
OSPWUS	WORK UNITS-OUTSIDE PLANT
OSPWUSPHR	WORK UNITS/HOUR-OUTSIDE PLANT
OTBCONFRC	OTHER BUILDINGS-FRACTION OF CONSTRUCTION
OTBDPT	DEPRECIABLE PLANT-OTHER BUILDINGS
OTH EXPIFO	EXPENSES-OTHER(IF OUTPUT)
OTHCLSWUSPMS	WORK UNITS/MESSAGE-OTHER CALLS
OTHEXP	EXPENSES-OTHER
OTHEXPNWG	EXPENSES-OTHER (NON WAGE)
OTHEXPWAG	EXPENSES-OTHER (WAGE)
*OTHINC	INCOME-OTHER
OTHWAGPHR	WAGES/HOUR-OTHER
OTHWUS	WORK UNITS-OTHER
OTHWUSPHR	WORK UNITS/HOUR-OTHER
OTPEXP	EXPENSES-OTHER OPERATING
OTPEXPIFO	EXPENSES-OTHER OPERATING(IF OUTPUT)

*PAYRTO	PAYOUT RATIO
PAYRTOMAX	PAYOUT RATIO MAXIMUM OF RANGE
PAYRTOMNM	PAYOUT RATIO MINIMUM OF RANGE
PBTCMS	REVENUES-PUBLIC TELEPHONE COMMISSIONS
PBTEXP	EXPENSES-PUBLIC TELEPHONE
*PCEERNRTO	PRICE EARNINGS RATIO
PCESHRPDS	STOCK-PROCEEDS PRICE PER SHARE
PLRCONDYY	CONSTRUCTION-PLANT REPLACEMENT AT 19YY PRICES
PLTEMP	EMPLOYEES-PLANT
PLTUNDCON	PLANT UNDER CONSTRUCTION
PLVDEPPRTAFT	DEPRECIATION-PARTIAL PRICE LEVEL DEPRECIATION AFTER INPUT
PLVIDX	PRICE LEVEL INDEX
POF	POOL OF FUNDS
POFCHG	POOL OF FUNDS-CHANGE IN LEVEL
*PRFDIV	DIVIDENDS-PREFERRED
PRFDIVRAT	DIVIDEND RATE-PREFERRED (IYR-1959)
PRFEQT	EQUITY-PREFERRED
PRFEQTPCT	EQUITY-PERCENT PREFERRED
PRFEQTSLD	EQUITY-PREFERRED SOLD
PRFRET	PREFERRED RETIREMENTS
PRPITREUS	PROP. INTEREST IN EARNINGS OF UNCONSOL. SUBSID
PRPTAX	TAXES-PROPERTY
PRPTAXRAT	TAXES-PROPERTY TAX RATE
PRTDEPAFT	DEPRECIATION-PARTIAL DEPRECIATION AFTER
QTRCEQ	EQUITY-QUARTER IN WHICH COMMON IS SOLD
QTREQTPRF	EQUITY-QUARTER IN WHICH PREFERRED IS SOLD
REVATCRTO	REVENUE TO AVERAGE TOTAL CAPITAL RATIO
RFDEXP	EXPENSES-RESEARCH AND DEVELOPMENT
RLPCAP	RELIEF AND PENSION CAPITALIZED
RLPEXP	EXPENSES-RELIEF AND PENSIONS
RNTEXP	EXPENSES-RENT
*RORATC	RATE OF RETURN ON AVERAGE TOTAL CAPITAL
RORATCPAT	RATE OF RETURN ON AVG TOTAL CAPITAL (PRE ALL TAX)
RORATCPFT	RATE OF RETURN ON AVERAGE TOTAL CAPITAL (PRE-FIT)
*RORATCPIT	RATE OF RETURN ON AVG TOTAL CAPITAL (PRE INCOME TAX)
*RORCEQAVGATT	RATE OF RETURN ON AT&T AVERAGE COMMON EQUITY
*REQTAVGATT	RATE OF RETURN ON AVERAGE AT&T EQUITY
*REQTAVGTOT	RATE OF RETURN ON AVERAGE TOTAL EQUITY
RORPLV	RATE OF RETURN-PRICE LEVEL
*RTE	RETAINED EARNINGS
*RTEANDDEP	RETAINED EARNINGS AND DEPRECIATION
RTEMIN	RETAINED EARNINGS ATTRIB. TO MIN. INT.
SLITAX	TAXES-OTHER(MOSTLY STATE AND LOCAL INCOME)
SLITAXRAT	TAXES-STATE AND LOCAL TAX RATE
*SSCTAX	TAXES-SOCIAL SECURITY
SSCTAXEMPFCT	TAXES-SOCIAL SECURITY EMPLOYEE FACTOR
SSCTAXRAT	TAXES-SOCIAL SECURITY TAX RATE
SSCTAXWAGFCT	TAXES-SOCIAL SECURITY WAGE FACTOR
STAOSPEMP	EMPLOYEES-STATIPN OUTSIDE PLANT
STCCONFRC	STATION CONNECTIONS-FRACTION OF CONSTRUCTION

STCDPT	DEPRECIABLE PLANT-STATION CONNECTIONS
STCPLT	PLANT-STATION CONNECTIONS
STCRET	RETIREMENTS-STATION CONNECTIONS
STMDBT	DEBT-SHORT TERM
STMDBTCHG	DEBT-CHANGE IN SHORT TERM
STMDBTPCT	DEBT-PERCENT SHORT TERM
STNCONDYY	CONSTRUCTION-STATION EQUIPMENT AT 19YY PRICES
STNEXP	EXPENSES-STATION
STNEXPNWG	EXPENSES-STATION (NON WAGE)
STNEXPWAG	EXPENSES-STATION (WAGE)
STNWAGPHR	WAGES/HOUR-STATION
STNWUS	WORK UNITS-STATION
STNWUSPHR	WORK UNITS/HOUR-STATION
STPCONFRC	STATION APPARATUS-FRACTION OF CONSTRUCTION
STPDPT	DEPRECIABLE PLANT-STATION APPARATUS
STPPLT	PLANT-STATION APPARATUS
STPRET	RETIREMENTS-STATION APPARATUS
TAXCDTAMR	TAX CREDIT AMORTIZED
TAXCDTNET	TAX CREDIT-NET
TAXCDTREL	TAX CREDIT REALIZED
TAXINC	INCOME-TAXABLE
TAXINCADJ	INCOME-TAXABLE INCOME ADJUSTMENT
TIME	YEAR VALUES FOR DATA BASE
TLACLSWUSPMS	WORK UNITS/MESSAGE-TOLL & LOCAL ASSIST CALLS
TOLMSG	MESSAGES-TOLL
TOLMSGINT	MESSAGES-TOLL INTERSTATE
TOLMSGSTA	MESSAGES-TOLL INTRASTATE
TOLREVINT	REVENUES-TOLL INTERSTATE
TOLREVINTDYY	REVENUES-TOLL INTERSTATE AT 19YY RATES
TOLREVINTIDX	REVENUES-TOLL INTERSTATE PRICE INDEX
TOLREVSTA	REVENUES-TOLL INTRASTATE
TOLREVSTADYY	REVENUES-TOLL INTRASTATE AT 19YY RATES
TOLREVSTAIDX	REVENUES-TOLL INTRASTATE PRICE INDEX
*TOTCAP	CAPITAL-TOTAL
TOTCAPADJ	CAPITAL-TOTAL ADJUSTED
*TOTCAPAVG	CAPITAL-AVERAGE TOTAL
TOTCEQPCT	EQUITY-COMMON PERCENT OF TOTAL
*TOTCON	CONSTRUCTION-TOTAL
TOTCONDYY	CONSTRUCTION-TOTAL AT 19YY PRICES
TOTCONIDX	CONSTRUCTION-TOTAL PRICE INDEX
*TOTDBT	DEBT-TOTAL
*TOTDEP	DEPRECIATION
*TOTDEPRES	DEPRECIATION RESERVE
TOTEMP	EMPLOYEES-TOTAL
TOTEQT	EQUITY-TOTAL
TOTEQTPCT	EQUITY-PERCENT TOTAL
*TOTEQTSLD	EQUITY-TOTAL SOLD IN YEAR
TOTEXF	EXTERNAL FINANCING-TOTAL
*TOTEXP	EXPENSES-TOTAL OPERATING WITH DEPRECIATION
*TOTEXPLDP	EXPENSES-TOTAL LESS DEPRECIATION

TOTEXPNWG	EXPENSES-TOTAL (NON WAGE)
TOTEXPWAG	EXPENSES-TOTAL (WAGE)
TOTEXPWAGDYY	EXPENSES-TOTAL (WAGES-19YY CONTRACT)
TOTEXPWAGIDX	EXPENSES-TOTAL WAGE INDEX
TOTIMV	TELEPHONES-TOTAL INWARD MOVEMENT
TOTOMV	TELEPHONES-TOTAL OUTWARD MOVEMENT
TOTOTHREQ	REVENUE REQUIREMENTS-TOT OTHER(POFCHG-DBT RET&REF+PRFRET)
TOTRET	RETIREMENTS-TOTAL
*TOTREV	REVENUES-TOTAL
*TOTSHRAVG	STOCK-AVERAGE TOTAL SHARES
*TOTSHROUT	STOCK-TOTAL SHARES OUTSTANDING
*TOTTAX	TAXES-TOTAL (FEDERAL AND OTHER)
*TOTTAXLFI	TAXES-TOTAL LESS FEDERAL INCOME (SLI+SSC+CAP+GRS+PRP)
TOTTEL	TELEPHONES-TOTAL
TOTTGN	TELEPHONE GAIN-TOTAL
TRDOPRRTO	OPERATING RATIO-TRADITIONAL
TRFEMP	EMPLOYEES-TRAFFIC DEPT.
TRFEMPOPR	EMPLOYEES-TRAFFIC OPERATORS
TRFEMPOTH	EMPLOYEES-TRAFFIC DEPT. NON OPERATOR
TRFEXP	EXPENSES-TRAFFIC DEPT.
TRFEXPNWG	EXPENSES-TRAFFIC DEPT. (NON WAGE)
TRFEXPOTH	EXPENSES-TRAFFIC DEPT. NON OPERATOR
TRFEXPWAG	EXPENSES-TRAFFIC DEPT. (WAGE)
TSPCLSWUSPMS	WORK UNITS/MESSAGE-TSP CALLS
TSTEXP	EXPENSES-TESTING
TSTEXPNWG	EXPENSES-TESTING (NON WAGE)
TSTEXPWAG	EXPENSES-TESTING (WAGE)
TSTWAGPHR	WAGES/HOUR-TESTING
TSTWUS	WORK UNITS-TESTING
TSTWUSPHR	WORK UNITS/HOUR-TESTING
UCLREV	REVENUES-UNCOLLECTABLE
UCLREVDYY	REVENUES-UNCOLLECTABLE AT 19YY RATES
UCLREVIDX	REVENUES-UNCOLLECTABLE PRICE INDEX
UDJSSRDYY	STOCK SERIES-UNADJUSTED VALUES FOR 19YY
*WECTAXDEFCDT	TAX CREDIT-W.E.DEFERRED

APPENDIX XA.2

VARIABLE NAMES AND DESCRIPTION

(DESCRIPTION IN ALPHABETICAL ORDER)

APRMIN	AGGREGATE PAYOUT RATIO FOR MINORITY INTEREST
*BVSAVG	BOOK VALUE PER SHARE-AVERAGE
BVS	BOOK VALUE PER SHARE(EOY)
ABDCLSDIR	CALLS-AVERAGE BUSINESS DAY DIRECTORY
ABDCLSOPHINT	CALLS-AVG BUS DAY OP HANDLED INTERSTATE
ABDCLSTLA	CALLS-AVG BUS DAY TOLL & LOCAL ASSIST
ABDCLSOPHTSP	CALLS-AVG BUS DAY OP HANDLED TRAF SERV POS
ABDCLSOPHOTH	CALLS-AVG BUS DAY OP HANDLED OTHER
*TOTCAPAVG	CAPITAL-AVERAGE TOTAL
TOTCAPADJ	CAPITAL-TOTAL ADJUSTED
*TOTCAP	CAPITAL-TOTAL
CFLATCRTO	CASH FLOW/AVERAGE TOTAL CAPITAL
COBCONFRC	CENTRAL OFFICE BUILDINGS-FRACTION OF CONSTRUCTION
COECONFRC	CENTRAL OFFICE EQUIPMENT-FRACTION OF CONSTRUCTION
CMVCONDYY	CONSTRUCTION-CUSTOMER MOVEMENT AT 19YY PRICES
COECONDYY	CONSTRUCTION-CENTRAL OFFICE EQUIPMENT AT 19YY PRICES
STNCONDYY	CONSTRUCTION-STATION EQUIPMENT AT 19YY PRICES
TOTCONDYY	CONSTRUCTION-TOTAL AT 19YY PRICES
*TOTCON	CONSTRUCTION-TOTAL
TOTCONIDX	CONSTRUCTION-TOTAL PRICE INDEX
PLRCONDYY	CONSTRUCTION-PLANT REPLACEMENT AT 19YY PRICES
OSPCONDYY	CONSTRUCTION-OUTSIDE PLANT AT 19YY PRICES
MODCONDYY	CONSTRUCTION-MODERNIZATION AT 19YY PRICES
LDBCONDYY	CONSTRUCTION-LAND AND BUILDINGS AT 19YY PRICES
GROCONDYY	CONSTRUCTION-GROWTH AT 19YY PRICES
GENCONDYY	CONSTRUCTION-GENERAL AT 19YY PRICES
*DBTRTOACH	DEBT RATIO ACHIEVED
DBTRTOOBJ	DEBT RATIO OBJECTIVE
BNDRET	DEBT RETIRED AND REFINANCED-BOND RETIREMENTS
STMDBTCHG	DEBT-CHANGE IN SHORT TERM
FRCDBTLTMHY1	DEBT-FRACTION OF LONG TERM SOLD IN 1ST HALF YEAR
FRCDBTHY1	DEBT-FRACTION SOLD IN 1ST HALF YEAR
LTMDBTSLD	DEBT-LONG TERM SOLD
LTMDBT	DEBT-LONG TERM
NETDBTSTMCHG	DEBT-NET CHANGE IN SHORT TERM
NEWDBTLTM	DEBT-NEW LONG TERM
LTMDBTPCT	DEBT-PERCENT LONG TERM
STMDBTPCT	DEBT-PERCENT SHORT TERM
STMDBT	DEBT-SHORT TERM
*TOTDBT	DEBT-TOTAL
NETDED	DEDUCTIONS-NET (INCL. TAXES)
OTBDPT	DEPRECIABLE PLANT-OTHER BUILDINGS
MVHDPT	DEPRECIABLE PLANT-MOTOR VEHICLES

DSTDPT	DEPRECIABLE PLANT-DISTRIBUTION PLANT
FRNDPT	DEPRECIABLE PLANT-FURNITURE
STPDPT	DEPRECIABLE PLANT-STATION APPARATUS
STCDPT	DEPRECIABLE PLANT-STATION CONNECTIONS
*ADDDPT	DEPRECIABLE PLANT-ADDITIONS TO
COEDPT	DEPRECIABLE PLANT-CENTRAL OFFICE EQUIPMENT
COBDPT	DEPRECIABLE PLANT-CENTRAL OFFICE BUILDINGS
PRTDEPAFT	DEPRECIATION-PARTIAL DEPRECIATION AFTER
PLVDEPPRTAFT	DEPRECIATION-PARTIAL PRICE LEVEL DEPRECIATION AFTER INPUT
*TOTDEPRES	DEPRECIATION RESERVE
*TOTDEP	DEPRECIATION
DSTCONFRC	DISTRIBUTION PLANT-FRACTION OF CONSTRUCTION
PRFDIVRAT	DIVIDEND RATE-PREFERRED (IYR-1959)
DIVMIN	DIVIDENDS PAID TO MINORITY INTEREST
*DPSCMN	DIVIDENDS-COMMON PER SHARE
CMNDIV	DIVIDENDS-COMMON
*PRFDIV	DIVIDENDS-PREFERRED
*EPSFDL	EARNINGS PER SHARE(FULLY DILUTED)
*EPS	EARNINGS PER SHARE
ACCEMP	EMPLOYEES-ACCOUNTING DEPT.
BOFEMP	EMPLOYEES-BUSINESS OFFICE
COMEMP	EMPLOYEES-COMMERCIAL DEPT.
CFTEMP	EMPLOYEES-CRAFT
DIREMP	EMPLOYEES-DIRECTORY DEPT.
ENGEMP	EMPLOYEES-ENGINEERING DEPT.
GOFEMP	EMPLOYEES-GENERAL OFFICE DEPT.
MTCEMP	EMPLOYEES-MAINTENANCE DEPT.
MNTEMP	*EMPLOYEES-MAINTENANCE (MTCEMP)
MKTEMP	EMPLOYEES-MARKETING DEPT.
NBOEMP	EMPLOYEES-NON BUSINESS OFFICE
ODPEMP	EMPLOYEES-OTHER DEPARTMENTS
PLTEMP	EMPLOYEES-PLANT
STAOSPEMP	EMPLOYEES-STATIPN OUTSIDE PLANT
TOTEMP	EMPLOYEES-TOTAL
TRFEMP	EMPLOYEES-TRAFFIC DEPT.
TRFEMPOTH	EMPLOYEES-TRAFFIC DEPT. NON OPERATOR
TRFEMPOPR	EMPLOYEES-TRAFFIC OPERATORS
ATTEQT	EQUITY-AT&T
*ATTCEQSLD	EQUITY-AT&T COMMON SOLD
ATTCEQAVG	EQUITY-AVERAGE AT&T COMMON
*AVGCEQ	EQUITY-AVERAGE COMMON
CEQSLD	EQUITY-COMMON SOLD
*CEQ	EQUITY-COMMON
TOTCEQPCT	EQUITY-COMMON PERCENT OF TOTAL
DSCEQT	EQUITY-DISCOUNT FROM MARKET PRICE AT WHICH SOLD
MINEQT	EQUITY-MINORITY
MINEQTPCT	EQUITY-PERCENT MINORITY
TOTEQTPCT	EQUITY-PERCENT TOTAL
PRFEQTPCT	EQUITY-PERCENT PREFERRED
ATTEQTPCT	EQUITY-PERCENT AT&T

PRFEQTSLD	EQUITY-PREFERRED SOLD
PRFEQT	EQUITY-PREFERRED
QTRCEQ	EQUITY-QUARTER IN WHICH COMMON IS SOLD
QTREQTPRF	EQUITY-QUARTER IN WHICH PREFERRED IS SOLD
MINEQTSLD	EQUITY-SOLD TO MINORITY SHAREHOLDERS
*TOTEQTSLD	EQUITY-TOTAL SOLD IN YEAR
TOTEQT	EQUITY-TOTAL
EXPCHGCON	EXPENSES CHARGED TO CONSTRUCTION
ACCEXP	EXPENSES-ACCOUNTING DEPT.
ACCEXPWAG	EXPENSES-ACCOUNTING DEPT. (WAGES)
ACCEXPNWG	EXPENSES-ACCOUNTING DEPT. (NON WAGE)
ADVEXP	EXPENSES-ADVERTISING DEPT.
BOFEXPWAG	EXPENSES-BUSINESS OFFICE (WAGES)
COEEXPNWG	EXPENSES-CENTRAL OFFICE (NON WAGE)
COEEXP	EXPENSES-CENTRAL OFFICE
COEEXPWAG	EXPENSES-CENTRAL OFFICE (WAGE)
COMEXP	EXPENSES-COMMERCIAL DEPT.
COMEXPWAG	EXPENSES-COMMERCIAL DEPT. (WAGES)
COMEXPNWG	EXPENSES-COMMERCIAL DEPT. (NON WAGE)
CMKEXP	EXPENSES-COMMERCIAL AND MARKETING DEPT.
DIREXP	EXPENSES-DIRECTORY
DIREXPWAG	EXPENSES-DIRECTORY (WAGES)
DIREXPNWG	EXPENSES-DIRECTORY (NON WAGE)
ENGEXPNWG	EXPENSES-ENGINEERING DEPT. (NON WAGE)
ENGEXP	EXPENSES-ENGINEERING DEPT.
ENGEXPWAG	EXPENSES-ENGINEERING DEPT. (WAGES)
GOFEXP	EXPENSES-GENERAL OFFICE
GOFEXPWAG	EXPENSES-GENERAL OFFICE (WAGES)
GOFEXPNWG	EXPENSES-GENERAL OFFICE (NON WAGE)
MTCEXPNWG	EXPENSES-MAINTENANCE (NON WAGE)
MTCEXP	EXPENSES-MAINTENANCE
MTCEXPWAG	EXPENSES-MAINTENANCE (WAGES)
MKTEXP	EXPENSES-MARKETING DEPT.
MKTEXPWAG	EXPENSES-MARKETING DEPT. (WAGES)
MKTEXPNWG	EXPENSES-MARKETING DEPT. (NON WAGE)
NBOEXPWAG	EXPENSES-NON BUSINESS OFFICE (WAGES)
ODPEXPWAG	EXPENSES-OTHER DEPARTMENTS (WAGES)
ODPEXPNWG	EXPENSES-OTHER DEPARTMENTS (NON WAGE)
ODPEXP	EXPENSES-OTHER DEPARTMENTS
OTPEXPIFO	EXPENSES-OTHER OPERATING(IF OUTPUT)
OTPEXP	EXPENSES-OTHER OPERATING
OTHEXPWAG	EXPENSES-OTHER (WAGE)
OTHEXPNWG	EXPENSES-OTHER (NON WAGE)
OTH EXPIFO	EXPENSES-OTHER(IF OUTPUT)
OTHEXP	EXPENSES-OTHER
OSPEXPWAG	EXPENSES-OUTSIDE PLANT (WAGES)
OSPEXPNWG	EXPENSES-OUTSIDE PLANT (NON WAGE)
OSPEXP	EXPENSES-OUTSIDE PLANT
PBTEXP	EXPENSES-PUBLIC TELEPHONE
RLPEXP	EXPENSES-RELIEF AND PENSIONS

RNTEXP	EXPENSES-RENT
RFDEXP	EXPENSES-RESEARCH AND DEVELOPMENT
STNEXPWAG	EXPENSES-STATION (WAGE)
STNEXPNWG	EXPENSES-STATION (NON WAGE)
STNEXP	EXPENSES-STATION
TSTEXP	EXPENSES-TESTING
TSTEXPWAG	EXPENSES-TESTING (WAGE)
TSTEXPNWG	EXPENSES-TESTING (NON WAGE)
TOTEXPNWG	EXPENSES-TOTAL (NON WAGE)
*TOTEXPLDP	EXPENSES-TOTAL LESS DEPRECIATION
*TOTEXP	EXPENSES-TOTAL OPERATING WITH DEPRECIATION
TOTEXPWAGIDX	EXPENSES-TOTAL WAGE INDEX
TOTEXPWAGDYY	EXPENSES-TOTAL (WAGES-19YY CONTRACT)
TOTEXPWAG	EXPENSES-TOTAL (WAGE)
OPREXPWAG	EXPENSES-TRAFFIC DEPT. OPERATORS (WAGES)
OPREXPTRN	EXPENSES-TRAFFIC DEPT. OPERATOR TRAINING
TRFEXPWAG	EXPENSES-TRAFFIC DEPT. (WAGE)
TRFEXPOTH	EXPENSES-TRAFFIC DEPT. NON OPERATOR
TRFEXPNWG	EXPENSES-TRAFFIC DEPT. (NON WAGE)
TRFEXP	EXPENSES-TRAFFIC DEPT.
TOTEXF	EXTERNAL FINANCING-TOTAL
FRNCONFRC	FURNITURE-FRACTION OF CONSTRUCTION
INCMIN	INCOME ATTRIB. TO MINORITY INTERESTS
*INCBDEITR	INCOME BEFORE INTEREST DEDUCTION
MSCINCOTH	INCOME-MISC. OTHER (NET OF DEDUCTIONS)
*OTHINC	INCOME-OTHER
TAXINCADJ	INCOME-TAXABLE INCOME ADJUSTMENT
TAXINC	INCOME-TAXABLE
ITR	INTEREST
ITRCOVPST	INTEREST COVERAGE-POST TAX
ITRCOVPAT	INTEREST COVERAGE-PRE TAX
*ITRCON	INTEREST DURING CONSTRUCTION
ITRPOF	INTEREST EARNED ON POOL OF FUNDS
*ITRSTMRAT	INTEREST RATE-SHORT TERM (3 MONTH TREAS BILL RATE)
*ITRLTMRAT	INTEREST RATE-LONG TERM(YLD ON NEW AAU ISSUES)
ITRIDCRAT	INTEREST RATE FOR IDC
ICR	INVESTMENT CREDIT RESERVE
NCSINVCHG	INVESTMENT CHANGE IN NON CONSOLIDATED SUBSIDIARIES
NCSINV	INVESTMENT IN NON CONSOLIDATED SUBSIDIARIES
LODIDX	LOAD INDEX
LRTACH	LOAN RATIO ACHIEVED
LRTOBJ	LOAN RATIO OBJECTIVE
MBR	MARKET/BOOK RATIO
TOLMSGSTA	MESSAGES-TOLL INTRASTATE
TOLMSGINT	MESSAGES-TOLL INTERSTATE
TOLMSG	MESSAGES-TOLL
MVHCONFRC	MOTOR VEHICLES-FRACTION OF CONSTRUCTION
*NEWMONCON	NEW MONEY TO CONSTRUCTION
*NEWOPRRTO	OPERATING RATIO-NEW
TRDOPRRTO	OPERATING RATIO-TRADITIONAL

OTBCONFRC	OTHER BUILDINGS-FRACTION OF CONSTRUCTION
PAYRTOMNM	PAYOUT RATIO MINIMUM OF RANGE
PAYRTOMAX	PAYOUT RATIO MAXIMUM OF RANGE
*PAYRTO	PAYOUT RATIO
PLTUNDCON	PLANT UNDER CONSTRUCTION
COEPLT	PLANT-CENTRAL OFFICE EQUIPMENT
DSTPLT	PLANT-DISTRIBUTION PLANT
GEQPLT	PLANT-GENERAL EQUIPMENT
*GRSPLT	PLANT-GROSS PLANT
LDBPLT	PLANT-LAND & BUILDINGS
*NETPLT	PLANT-NET
STCPLT	PLANT-STATION CONNECTIONS
STPPLT	PLANT-STATION APPARATUS
POF	POOL OF FUNDS
POFCHG	POOL OF FUNDS-CHANGE IN LEVEL
PRFRET	PREFERRED RETIREMENTS
*PCEERNRTO	PRICE EARNINGS RATIO
PLVIDX	PRICE LEVEL INDEX
PRPITREUS	PROP. INTEREST IN EARNINGS OF UNCONSOL. SUBSID
RORPLV	RATE OF RETURN-PRICE LEVEL
*ROREQTAVGTOT	RATE OF RETURN ON AVERAGE TOTAL EQUITY
RORATCPAT	RATE OF RETURN ON AVG TOTAL CAPITAL (PRE ALL TAX)
*RORATC	RATE OF RETURN ON AVERAGE TOTAL CAPITAL
*ROREQTAVGATT	RATE OF RETURN ON AVERAGE AT&T EQUITY
*RORCEQAVGATT	RATE OF RETURN ON AT&T AVERAGE COMMON EQUITY
*RORATCPIT	RATE OF RETURN ON AVG TOTAL CAPITAL (PRE INCOME TAX)
RORATCPFT	RATE OF RETURN ON AVERAGE TOTAL CAPITAL (PRE-FIT)
RLPCAP	RELIEF AND PENSION CAPITALIZED
MSCOTHRES	RESOURCES-MISCELLANEOUS OTHER (NET)
NETOTHRES	RESOURCES-NET OTHER (TAX DEFERRALS, CREDITS)
*RTEANDDEP	RETAINED EARNINGS AND DEPRECIATION
*RTE	RETAINED EARNINGS
RTEMIN	RETAINED EARNINGS ATTRIB. TO MIN. INT.
STCRET	RETIREMENTS-STATION CONNECTIONS
STPRET	RETIREMENTS-STATION APPARATUS
TOTRET	RETIREMENTS-TOTAL
LDBRET	RETIREMENTS-LAND & BUILDINGS
GEQRET	RETIREMENTS-GENERAL EQUIPMENT
DSTRET	RETIREMENTS-DISTRIBUTION PLANT
COERET	RETIREMENTS-CENTRAL OFFICE EQUIPMENT
*NEWMONREQ	REVENUE REQUIREMENTS-NEW MONEY REQUIREMENTS
TOTOTHREQ	REVENUE REQUIREMENTS-TOT OTHER(POFCHG-DBT RET&REF+PRFRET)
REVATCRTO	REVENUE TO AVERAGE TOTAL CAPITAL RATIO
DIRREV	REVENUES-DIRECTORY
LCLREVIDX	REVENUES-LOCAL PRICE INDEX
LCLREVDYY	REVENUES-LOCAL AT 19YY RATES
LCLREV	REVENUES-LOCAL
MSCREVDYY	REVENUES-MISCELLANEOUS AT 19YY RATES
MSCREV	REVENUES-MISCELLANEOUS
MSCREVIDX	REVENUES-MISCELLANEOUS PRICE INDEX

*NOR	REVENUES-NET OPERATING
PBTCMS	REVENUES-PUBLIC TELEPHONE COMMISSIONS
TOLREVSTAIDX	REVENUES-TOLL INTRASTATE PRICE INDEX
TOLREVSTADYY	REVENUES-TOLL INTRASTATE AT 19YY RATES
TOLREVSTA	REVENUES-TOLL INTRASTATE
TOLREVINTIDX	REVENUES-TOLL INTERSTATE PRICE INDEX
TOLREVINTDYY	REVENUES-TOLL INTERSTATE AT 19YY RATES
TOLREVINT	REVENUES-TOLL INTERSTATE
*TOTREV	REVENUES-TOTAL
UCLREVIDX	REVENUES-UNCOLLECTABLE PRICE INDEX
UCLREVDYY	REVENUES-UNCOLLECTABLE AT 19YY RATES
UCLREV	REVENUES-UNCOLLECTABLE
STPCONFRC	STATION APPARATUS-FRACTION OF CONSTRUCTION
STCCONFRC	STATION CONNECTIONS-FRACTION OF CONSTRUCTION
UDJSSRDYY	STOCK SERIES-UNADJUSTED VALUES FOR 19YY
ADJSSRDYY	STOCK SERIES-ADJUSTED VALUES FOR 19YY
*TOTSHRAVG	STOCK-AVERAGE TOTAL SHARES
*MKTPCESHR	STOCK-MARKET PRICE PER SHARE
*NEWSHRCMNSLD	STOCK-NEW COMMON SHARES SOLD
PCESHRPDS	STOCK-PROCEEDS PRICE PER SHARE
*TOTSHROUT	STOCK-TOTAL SHARES OUTSTANDING
TAXCDTAMR	TAX CREDIT AMORTIZED
TAXCDTREL	TAX CREDIT REALIZED
FRCTAXCDTREL	TAX CREDIT-FRACTION OF CONSTRUCTION REALIZED AS TAX CREDIT
FRCTAXCDTAMR	TAX CREDIT-FRACTION OF AVG TAX CREDIT RESERVE AMORTIZED
TAXCDTNET	TAX CREDIT-NET
*WECTAXDEFCDT	TAX CREDIT-W.E.DEFERRED
DEFTAXACU	TAXES-ACCUMULATED DEFERRED
CAPTAXRAT	TAXES-CAPITAL STOCK TAX RATE
CAPTAX	TAXES-CAPITAL STOCK
*DEFTAX	TAXES-DEFERRED AD-ADR
FITTAXRAT	TAXES-FEDERAL INCOME RATE
FITTAXIDX	TAXES-FEDERAL INCOME INDEX
*FITTAX	TAXES-FEDERAL INCOME
GRSTAXRAT	TAXES-GROSS RECIEPTS TAX RATE
GRSTAX	TAXES-GROSS RECEIPTS
SLITAX	TAXES-OTHER(MOSTLY STATE AND LOCAL INCOME)
PRPTAXRAT	TAXES-PROPERTY TAX RATE
PRPTAX	TAXES-PROPERTY
*SSCTAX	TAXES-SOCIAL SECURITY
SSCTAXWAGFCT	TAXES-SOCIAL SECURITY WAGE FACTOR
SSCTAXRAT	TAXES-SOCIAL SECURITY TAX RATE
SSCTAXEMPFCT	TAXES-SOCIAL SECURITY EMPLOYEE FACTOR
SLITAXRAT	TAXES-STATE AND LOCAL TAX RATE
*TOTTAXLFI	TAXES-TOTAL LESS FEDERAL INCOME (SLI+SSC+CAP+GRS+PRP)
*TOTTAX	TAXES-TOTAL (FEDERAL AND OTHER)
TOTTGN	TELEPHONE GAIN-TOTAL
EQMTGN	TELEPHONE GAIN-EQUIVALENT MAIN
MANTGN	TELEPHONE GAIN-MAIN
EQMTEL	TELEPHONES-EQUIVALENT MAIN

MANTEL	TELEPHONES-MAIN
TOTTEL	TELEPHONES-TOTAL
TOTOMV	TELEPHONES-TOTAL OUTWARD MOVEMENT
TOTIMV	TELEPHONES-TOTAL INWARD MOVEMENT
CPI	US CONSUMER PRICE INDEX
BOFWAGEMPRTO	WAGES PER EMPLOYEE-BUSINESS OFFICE
ACCWAGEMPRTO	WAGES PER EMPLOYEE-ACCOUNTING DEPT
MKTWAGEMPRTO	WAGES PER EMPLOYEE-MARKETING DEPT.
NBOWAGEMPRTO	WAGES PER EMPLOYEE-NON BUSINESS OFFICE
ODPWAGEMPRTO	WAGES PER EMPLOYEE-OTHER DEPARTMENTS
DIRWAGEMPRTO	WAGES PER EMPLOYEE-DIRECTORY
OPRWAGPHR	WAGES/HOUR OPERATORS
COEWAGPHR	WAGES/HOUR-CENTRAL OFFICE
MTCWAGPHR	WAGES/HOUR-MAINTENANCE
OSPWAGPHR	WAGES/HOUR-OUTSIDE PLANT
OTHWAGPHR	WAGES/HOUR-OTHER
STNWAGPHR	WAGES/HOUR-STATION
TSTWAGPHR	WAGES/HOUR-TESTING
ABDWUS	WORK UNITS-AVERAGE BUSINESS DAY
COEWUS	WORK UNITS-CENTRAL OFFICE
OTHWUS	WORK UNITS-OTHER
OSPWUS	WORK UNITS-OUTSIDE PLANT
STNWUS	WORK UNITS-STATION
TSTWUS	WORK UNITS-TESTING
TSTWUSPHR	WORK UNITS/HOUR-TESTING
STNWUSPHR	WORK UNITS/HOUR-STATION
OTHWUSPHR	WORK UNITS/HOUR-OTHER
OSPWUSPHR	WORK UNITS/HOUR-OUTSIDE PLANT
COEWUSPHR	WORK UNITS/HOUR-CENTRAL OFFICE
DIRCLSWUSPMS	WORK UNITS/MESSAGE-DIRECTORY CALLS
INTCLSWUSPMS	WORK UNITS/MESSAGE-INTERSTATE CALLS
OTHCLSWUSPMS	WORK UNITS/MESSAGE-OTHER CALLS
TLACLSWUSPMS	WORK UNITS/MESSAGE-TOLL & LOCAL ASSIST CALLS
TSPCLSWUSPMS	WORK UNITS/MESSAGE-TSP CALLS
TIME	YEAR VALUES FOR DATA BASE

Appendix XA.3

List of Partials, Subtotals, Totals, IF input, Report and IF Output Variables

NOTE: Dyy AT THE END OF A VARIABLE INDICATES DOLLAR VALUES COMPUTED AS OF CONTRACTS,RATES, OR PRICES IN 19YY (THE CURRENT BUDGET YEAR) ALL EXPENSE WAGE VARIABLES SHOULD HAVE THE Dyy SUFFIX

PARTIALS

ACCEMP,ACCEXPNWG,ACCEXPWAG,ADVEXP,COECONDyy,COMEMP,COMEXPNWG,COMEXPWAG,
DIREXPNWG,DIREXPWAG,ENGEMP,ENGEXPNWG,ENGEXPWAG,GENCONDyy,GOFEMP,
GOFEXPNWG,GOFEXPWAG,LCLREVDyy,LCLREVIDX,LDBCONDyy,MKTEMP,MKTEXPNWG,
MKTEXPWAG,MSCREVDyy,MSCREVIDX,MTCEMP,MTCEXPNWG,MTCEXPWAG,OSPCONDyy,
OTPEXP,PBTEXP,RFDEXP,STNCONDyy,TOLMSGINT,
TOLMSGSTA,TOLREVINTDyy,TOLREVINTIDX,TOLREVSTADyy,TOLREVSTAIDX,
TOTCONIDX,TOTEXPWAGIDX,TRFEMP,TRFEXPNWG,TRFEXPWAG,UCLREVDyy,UCLREVIDX,

SUBTOTALS

ACCEXP,COMEXP,DIREXP,ENGEXP,GOFEXP,LCLREV,MKTEXP,MSCREV,MTCEXP,OTHEXP,
TOLREVINT,TOLREVSTA,TOTCONDyy,TOTEXPNWG,TOTEXPWAG,TOTEXPWAGDyy,
TRFEXP,UCLREV

TOTALS

TOLMSG,TOTCON,TOTEMP,TOTEXPLDP,TOTREV

OTHER IF INPUTS

CAPTAXRAT,DEFTAX,FITTAXRAT,SLITAXRAT,SSCTAXRAT,TOTCON,TOTDEP,
GRSTAXRAT,PRPTAXRAT,FRNCONFRC,COBCONFRC,COECONFRC,
STPCONFRC,STCCONFRC,DSTCONFRC,OTBCONFRC,MVHCONFRC,TAXINCADJ,
FRCTAXCDTREL,FRCTAXCDTAMR,NCSINVCHG,MSCOTHRES,PRPITREUS,ITRIDCRAT,
TOTEXPLDP,TOTREV

REPORT

ACCEMP,CMVCOV,COMEMP,DIREMP,DIRREV,ENGEMP,EQMTEL,EQMTGN,GOFEMP,
GROCON,MANTEL,MANTGN,MKTEMP,MODCON,MTCEMP,PLRCON,TIME,TOLMSGINT,
TOLMSGSTA,TOLMSG,TOTEMP,TOTIMV,TOTOMV,TOTTEL,TOTTGN,TRFEMP

IFOUTPUT

ADDDPT,APMIN,ATTCEQAVG,ATTCEQSLD,ATTEQT,ATTEQTPCT,AVGCEQ,BNDRET,
BVS,BVSAVG,CAPTAX,CEQ,CEQSLD,CFLATCRTO,CMKEXP,CMNDIV,COBDPT,
COEDPT,COEEXP,COEEXPNWG,COEEXPWAG,COEPLT,COERET,COEWAGPHR,COEWUS,
COEWUSPHR,DBTRTOACH,DEFTAX,DIVMIN,DPSCMN,DSTDPT,DSTPLT,DSTRET,
EPS,EPSFDL,FITTAX,FITTAXRAT,FRCDBTHYl,FRNDPT,GEQPLT,GRSPLT,GRSTAX,
ICR,INCBDEITR,INCMIN,ITR,ITRCON,ITRCOVPAT,ITRCOVPST,ITRIDCRAT,
ITRLTMRAT,ITRPOF,ITRSTMRAT,LDBPLT,LDBRET,LEVPOFCHG,LRTACH,LTMDBT,
LTMDBTPCT,LTMDBTSLD,MBR,MINEQT,MINEQTPCT,MINEQTSLD,MKTPCESHR,
MSCINCOTH,MSCOTHRES,MTCEXP,MTCWAGPHR,MVHDPT,NETDBTSTMCHG,NETDED,
NETOTHRES,NETPLT,NEWDBTLTM,NEWMONCON,MEWMONREQ,NEWOPRRTO,NEWSHRCMNSLD,
NOR,OSPEXP,OSPEXPNWG,OSPEXPWAG,OSPWAGPHR,OSPWUS,OSPWUSPHR,OTBDPT,
OTHEXP,OTHEXPIFO,OTHEXPNWG,OTHEXPWAG,OTHINC,OTHWAGPHR,OTHWUS,OTHWUSPHR,
PAYRTO,PCEERNRTO,PCESHRPDS,PLTUNDCON,PLVDEPPRATAFT,PLVIDX,POF,
PRFDIV,PRFDIVRAT,PRFEQT,PRFEQTPCT,PRFEQTSLD,PRFRET,PRPITREUS,
PRPTAX,PRTDEPAFT,QTRCEQ,QTREQTPRF,REVATCRTO,RLPCAP,RORATC,RORATCPAT,
RORATCPFT,RORATCPIT,RORCEQAVGATT,ROREQTAVGATT,ROREQTAVGTOT,RORPLV,RTE,
RTEANDDEP,RTEMIN,SLITAX,SSCTAX,STCDPT,STCPLT,STCRET,STMDBT,STMDBTPCT,
STNEXP,STNEXPNWG,STNEXPWAG,STNWAGPHR,STNWUS,STNWUSPHR,STPDPT,STPPLT,
STPRET,TAXCDTAMR,TAXCDTNET,TAXCDTREL,TAXINC,TAXINCADJ,TOTCAP,TOTCAPADJ,
TOTCAPAVG,TOTCEQPCT,TOTCON,TOTDBT,TOTDEP,TOTDEPRES,TOTEQT,TOTEQTPCT,
TOTEQTSLD,TOTEXF,TOTEXP,TOTEXPLDP,TOTOTHREQ,TOTRET,TOTREV,TOTSHRAVG,
TOTSHROUT,TOTTAX,TOTAXLFI,TRDOPRRTO,TRFEXP,TSTEXP,TSTEXPNWG,TSTEXPWAG,
TSTWAGPHR,TSTWUS,TSTWUSPHR,WECTAXDEFCDT

APPENDIX XA.4,1

DETAILED LIST OF IF INPUT (75PROJ1 or 75OBJ1)

The following variables can be altered as input to the IF runstream

I. For the budget year (accessable by priveleged users only)

1.	TOTREV	Revenues Total or any of these parts	
		LCLREVDyy	Revenues - Local at 19YY rates
		TOLREVINTDyy	Revenues - Toll Interstate at 19YY rates
		TOLREVSTADyy	Revenues - Toll Interstate at 19YY rates
		MSCREVDyy	Revenues - Miscellaneous at 19YY rates
		UCLREVDyy	Revenues - Uncollectable at 19YY rates
		LCLREVIDX	Revenues - Local Price Index
		TOLREVINTIDX	Revenues - Toll Interstate Price Index
		TOLREVSTAIDX	Revenues - Toll Interstate Price Index
		MSCREVIDX	Revenues - Miscellaneous Price Index
		UCLREVIDX	Revenues - Uncollectable Price Index
2	ITR	Interest	
3	CMNDIV	Dividends - Common	
4	PRFDIV	Dividends - Preferred	
5	TOTCON	Construction - Total or any of these parts	
		OSPCONDyy	Construction - Outside Plant at 19YY contract
		COECONDyy	Construction - Central Office Equipment at 19YY contract
		LDBCONDyy	Construction - Land and Buildings at 19YY contract
		GENCONDyy	Construction - General at 19YY contract
		STNCONDyy	Construction - Station Equipment at 19YY contract
		TOTCONIDX	Construction - Total Price Index
6	NEWMONREQ	New Money Requirements	
7	NETOTHRES	Net Other Resources(Tax Deferrals, Credits)	
8	MSCOTHRES	Miscellaneous Other Resources(Net)	
9	GRSPLT	Plant - Gross Plant	
10	STCPLT	Plant - Station Connections	
11	STPPLT	Plant - Station Apparatus	

12	GEQPLT	Plant - General Equipment
13	DSTPLT	Plant - Distribution Plant
14	LDBPLT	Plant - Land and Buildings
15	TOTDEPRES	Depreciation Reserve
16	TOTCAP	Capital - Total
17	LTMDBT	Debt - Long Term
18	STMDBT	Debt - Short Term
19	PRFEQT	Equity - Preferred
20	MINEQT	Equity - Minority
21	TOTSHROUT	Stock - Total Shares Outstanding(Common)
22	LTMDBTSLD	Debt - Long Term Sold
23	ITRLTMRAT	Interest Rate - Long Term(Yield on new AAU Utilities)
24	ITRSTMRAT	Interest Rate - Short Term(3 Month Treas Bill Rate)
25	FRCDBTHY1	Debt - Fraction Sold in 1st Half Year
26	SSCTAXRAT	Tax Rate - Social Security
27	PRFEQTSLD	Equity - Preferred Sold
28	EPS	Earnings Per Share
29	PCEERNRTO	Price Earnings Ratio
30	DPSCMN	Dividends - Common Per Share
31	POF	Pool of Funds
32	STMDBT(Prevyr)	Debt - Short Term(Year prior to base year)
33	LRTOBJ	Loan Ratio Objective
34	FRCTAXCDTREL	Tax Credit - Fraction of Construction Realized as Tax Credit
35	FRCTAXCDTAMR	Tax Credit - Fraction of Avg Tax Credit Reserve Amortized
36	NCSINV	Investment in Non Consolidated Subsidiaries
37	NCSINV(Prevyr)	

38	DEFTAXACU	Taxes - Accumulated Deferred
39	ITRIDCRAT	Interest Rate for IDC
40	APRMIN	Aggregate Payout Ratio for Minority Interest
41	MINEQTSLD	Equity - Sold to Minority Shareholders
42	QTREQTPRF	Equity - Quarter in which Preferred is Sold
43	QTRCEQ	Equity - Quarter in which Common is Sold
44	ICR	Investment Credit Reserve
45	TOTRET	Retirements - Total

Construction and Fractions of Construction are not input and mark the end of the budget stream.

The starting and ending for Accelerated Depreciation, Asset Depreciation Range, Equal Life Groups, and Price Level Depreciation are not specified.

The during modifier of the DEFINE statement determines the end year of the IF run.

II. For succeding years for all users

1. TOTREV — Revenues - Total or any of these parts(REV,CON run)

LCLREVDyy	Revenues - Local at 19YY rates
TOLREVINTDyy	Revenues - Toll Interstate at 19YY rates
TOLREVSTADyy	Revenues - Toll Interstate at 19YY rates
MSCREVDyy	Revenues - Miscellaneous at 19YY rates
UCLREVDyy	Revenues - Uncollectable at 19YY rates
LCLREVIDX	Revenues - Local Price Index
TOLREVINTIDX	Revenues - Toll Interstate Price Index
TOLREVSTAIDX	Revenues - Toll Interstate Price Index
MSCREVIDX	Revenues - Miscellaneous Price Index
UCLREVIDX	Revenues - Uncollectable Price Index

2 RORCEQAVGATT — Rate of Return on Av. AT&T Common Equity(RCE,CON run)

3 EPS — Earnings Per Share (EPS,CON run)

4 TOTCON — Construction-Total or any of the following parts

OSPCONDyy	Construction - Outside Plant at 19YY contract
COECONDyy	Construction - Central Office Equipment at 19YY contract
LDBCONDyy	Construction - Land and Buildings at

			19YY contract
		GENCONDyy	Construction - General at 19YY contract
		STNCONDyy	Construction - Station Equipment at 19YY contract
		TOTCONIDX	Construction - Total Price Index
5	TOTEXPLDP		Expenses - Total less Depreciation of any of the following parts
		MTCEXPNWG	Expenses - Maintenance (Non Wage)
		TRFEXPNWG	Expenses - Traffic Dept.(Non Wage)
		COMEXPNWG	Expenses - Commercial Dept.(Non Wage)
		MKTEXPNWG	Expenses - Marketing Dept.(Non Wage)
		DIREXPNWG	Expenses - Directory(Non Wage)
		ACCEXPNWG	Expenses - Accounting Dept.(Non Wage)
		GOFEXPNWG	Expenses - General Office(Non Wage)
		ENGEXPWAG	Expenses - Engineering Dept.(Non Wage)
		MTCEXPWAG	Expenses - Maintenance(Wage)[These are actually at 19YY contract]
		TRFEXPWAG	Expenses - Traffic Dept.(Wage)[These are actually at 19YY contract]
		COMEXPWAG	Expenses - Commercial Dept.(Wage)[These are actually at 19YY contract]
		MKTEXPWAG	Expenses - Marketing Dept.(Wage)[These are actually 19YY contract]
		DIREXPWAG	Expenses - Directory(Wage)[These are actually at 19YY contract]
		ACCEXPWAG	Expenses - Accounting Dept.(Wage)[These are actually at 19YY contract]
		GOFEXPWAG	Expenses - General Office(Wage)[These are actually at 19YY contract]
		ENGEXPWAG	Expenses - Engineering Dept.(Wage) [These are actually at 19YY contract]
		ADVEXP	Expenses - Advertising
	RFDCXP	OTPEXP	Expenses - Other Operating
		PBTEXP	Expenses - Public Telephone
		TOTEXPWAGIDX	Expenses - Total Wage Index
6	TOTEXPWAG		Expenses - Total(Wage) which can only be altered through one of the following
		MTCEXPWAG	Expenses - Maintenance(Wage)[These are actually at 19YY contract]
		TRFEXPWAG	Expenses - Traffic Dept.(Wage)[These are actually at 19YY contract]
		COMEXPWAG	Expenses - Commercial Dept.(Wage)[These are actually at 19YY contract]
		MKTEXPWAG	Expenses - Marketing Dept.(Wage)[These are actually at 19YY contract]
		DIREXPWAG	Expenses - Directory(Wage)[These are actually at 19YY contract]
		ACCEXPWAG	Expenses - Accounting Dept.(Wage)[These are actually at 19YY contract]

	GOFEXPWAG	Expenses - General Office(Wage)[These are actually at 19YY contract]
	ENGEXPWAG	Expenses - Engineering Dept.(Wage) [These are actually at 19YY contract]
7	TOTDEP	Depreciation
8	FRNCONFRC	Furniture - Fraction of Construction
9	COBCONFRC	Central Office Buildings - Fraction of Construction
10	COECONFRC	Central Office Equipment - Fraction of Construction
11	STPCONFRC	Station Apparatus - Fraction of Construction
12	STCCONFRC	Station Connections - Fraction of Construction
13	DSTCONFRC	Distribution Plant - Fraction of Construction
14	OTBCONFRC	Other Buildings - Fraction of Construction
15	MVHCONFRC	Motor Vehicles - Fraction of Construction
16	FITTAXRAT	Taxes - Federal Income Tax Rate
17	TAXINCADJ	Taxable Income Adjustments
18	PRPTAXRAT	Taxes - Property Tax Rate
19	GRSTAXRAT	Taxes - Gross Receipts Rate
20	SSCTAXRAT	Taxes - Social Security Tax Rate
21	CAPTAXRAT	Taxes - Capital Tax Rate
22	SLITAXRAT	Taxes - State & Local Income Tax Rate
23	DEFTAX	Taxes - Deferred AD-ADR
24	FRCTAXCDTREL	Tax Credit - Fraction of Construction Realized as Tax Credit
25	FRCTAXCDTAMR	Tax Credit - Fraction of Tax Credit Reserve Amortized
26	NCSINVCHG	Investment change in Non Consolidated Subsidiaries
27	MSCOTHRES	Miscellaneous Other Resources(NET)
28	PRPITREUS	Prop. Interest in Earnings of Unconsol. Subsid
29	ITRIDCRAT	Interest Rate for IDC
30	MSCINCOTH	Income - Miscellaneous Other

III. Variables in the finance stream may be altered via substitute runstreams - See Section C.2.5 and Appendix XI for further information.

APPENDIX XA.4,2

DETAILED LIST OF IF INPUT (75PROJ2 or 75OBJ2)

The following variables can be altered as input to the IF runstream

I. For the budget year (accessable by priveleged users only)

1.	TOTREV	Revenues Total or any of these parts	
		LCLREVDyy	Revenues - Local at 19YY rates
		TOLREVINTDyy	Revenues - Toll Interstate at 19YY rates
		TOLREVSTADyy	Revenues - Toll Interstate at 19YY rates
		MSCREVDyy	Revenues - Miscellaneous at 19YY rates
		UCLREVDyy	Revenues - Uncollectable at 19YY rates
		LCLREVIDX	Revenues - Local Price Index
		TOLREVINTIDX	Revenues - Toll Interstate Price Index
		TOLREVSTAIDX	Revenues - Toll Interstate Price Index
		MSCREVIDX	Revenues - Miscellaneous Price Index
		UCLREVIDX	Revenues - Uncollectable Price Index
2	ITR	Interest	
3	CMNDIV	Dividends - Common	
4	PRFDIV	Dividends - Preferred	
5	TOTCON	Construction - Total or any of these parts	
		OSPCONDyy	Construction - Outside Plant at 19YY contract
		COECONDyy	Construction - Central Office Equipment at 19YY contract
		LDBCONDyy	Construction - Land and Buildings at 19YY contract
		GENCONDyy	Construction - General at 19YY contract
		STNCONDyy	Construction - Station Equipment at 19YY contract
		TOTCONIDX	Construction - Total Price Index
6	NEWMONREQ	New Money Requirements	
7	NETOTHRES	Net Other Resources(Tax Deferrals, Credits)	
8	MSCOTHRES	Miscellaneous Other Resources(Net)	
9	GRSPLT	Plant - Gross Plant	
10	STCPLT	Plant - Station Connections	
11	STPPLT	Plant - Station Apparatus	

12	GEQPLT	Plant - General Equipment
13	DSTPLT	Plant - Distribution Plant
14	LDBPLT	Plant - Land and Buildings
15	TOTDEPRES	Depreciation Reserve
16	TOTCAP	Capital - Total
17	LTMDBT	Debt - Long Term
18	STMDBT	Debt - Short Term
19	PRFEQT	Equity - Preferred
20	MINEQT	Equity - Minority
21	TOTSHROUT	Stock - Total Shares Outstanding(Common)
22	LTMDBTSLD	Debt - Long Term Sold
23	ITRLTMRAT	Interest Rate - Long Term(Yield on new AAU Utilities)
24	ITRSTMRAT	Interest Rate - Short Term(3 Month Treas Bill Rate)
25	FRCDBTHY1	Debt - Fraction Sold in 1st Half Year
26	SSCTAXRAT	Tax Rate - Social Security
27	PRFEQTSLD	Equity - Preferred Sold
28	EPS	Earnings Per Share
29	PCEERNRTO	Price Earnings Ratio
30	DPSCMN	Dividends - Common Per Share
31	POF	Pool of Funds
32	STMDBT(Prevyr)	Debt - Short Term(Year prior to base year)
33	LRTOBJ	Loan Ratio Objective
34	FRCTAXCDTREL	Tax Credit - Fraction of Construction Realized as Tax Credit
35	FRCTAXCDTAMR	Tax Credit - Fraction of Avg Tax Credit Reserve Amortized
36	NCSINV	Investment in Non Consolidated Subsidiaries
37	NCSINV(Prevyr)	

38	DEFTAXACU	Taxes - Accumulated Deferred
39	ITRIDCRAT	Interest Rate for IDC
40	APRMIN	Aggregate Payout Ratio for Minority Interest
41	MINEQTSLD	Equity - Sold to Minority Shareholders
42	QTREQTPRF	Equity - Quarter in which Preferred is Sold
43	QTRCEQ	Equity - Quarter in which Common is Sold
44	ICR	Investment Credit Reserve
45	TOTRET	Retirements - Total

Construction and Fractions of Construction are not input and mark the end of the budget stream.

The starting and ending for Accelerated Depreciation, Asset Depreciation Range, Equal Life Groups, and Price Level Depreciation are not specified.

The during modifier of the DEFINE statement determines the end year of the IF run.

II. For succeding years for all users

1. TOTREV — Revenues - Total or any of these parts(REV,CON run)

LCLREVDyy	Revenues - Local at 19YY rates
TOLREVINTDyy	Revenues - Toll Interstate at 19YY rates
TOLREVSTADyy	Revenues - Toll Interstate at 19YY rates
MSCREVDyy	Revenues - Miscellaneous at 19YY rates
UCLREVDyy	Revenues - Uncollectable at 19YY rates
LCLREVIDX	Revenues - Local Price Index
TOLREVINTIDX	Revenues - Toll Interstate Price Index
TOLREVSTAIDX	Revenues - Toll Interstate Price Index
MSCREVIDX	Revenues - Miscellaneous Price Index
UCLREVIDX	Revenues - Uncollectable Price Index

2 RORCEQAVGATT — Rate of Return on Av. AT&T Common Equity(RCE,CON run)

3 EPS — Earnings Per Share (EPS,CON run)

4 TOTCON — Construction-Total or any of the following parts

OSPCONDyy	Construction - Outside Plant at 19YY contract
COECONDyy	Construction - Central Office Equipment at 19YY contract
LDBCONDyy	Construction - Land and Buildings at

			19YY contract
		GENCONDyy	Construction - General at 19YY contract
		STNCONDyy	Construction - Station Equipment at 19YY contract
		TOTCONIDX	Construction - Total Price Index
5	TOTEXPLDP	Expenses - Total less Depreciation of any of the following parts	
		MTCEXPNWG	Expenses - Maintenance (Non Wage)
		TRFEXPNWG	Expenses - Traffic Dept.(Non Wage)
		COMEXPNWG	Expenses - Commercial Dept.(Non Wage)
		MKTEXPNWG	Expenses - Marketing Dept.(Non Wage)
		DIREXPNWG	Expenses - Directory(Non Wage)
		ACCEXPNWG	Expenses - Accounting Dept.(Non Wage)
		GOFEXPNWG	Expenses - General Office(Non Wage)
		ENGEXPWAG	Expenses - Engineering Dept.(Non Wage)
		MTCEXPWAG	Expenses - Maintenance(Wage)[These are actually at 19YY contract]
		TRFEXPWAG	Expenses - Traffic Dept.(Wage)[These are actually at 19YY contract]
		COMEXPWAG	Expenses - Commercial Dept.(Wage)[These are actually at 19YY contract]
		MKTEXPWAG	Expenses - Marketing Dept.(Wage)[These are actually 19YY contract]
		DIREXPWAG	Expenses - Directory(Wage)[These are actually at 19YY contract]
		ACCEXPWAG	Expenses - Accounting Dept.(Wage)[These are actually at 19YY contract]
		GOFEXPWAG	Expenses - General Office(Wage)[These are actually at 19YY contract]
		ENGEXPWAG	Expenses - Engineering Dept.(Wage) [These are actually at 19YY contract]
		ADVEXP	Expenses - Advertising
		OTPEXP	Expenses - Other Operating
		PBTEXP	Expenses - Public Telephone
		TOTEXPWAGIDX	Expenses - Total Wage Index
6	TOTEXPWAG	Expenses - Total(Wage) which can only be altered through one of the following	
		MTCEXPWAG	Expenses - Maintenance(Wage)[These are actually at 19YY contract]
		TRFEXPWAG	Expenses - Traffic Dept.(Wage)[These are actually at 19YY contract]
		COMEXPWAG	Expenses - Commercial Dept.(Wage)[These are actually at 19YY contract]
		MKTEXPWAG	Expenses - Marketing Dept.(Wage)[These are actually at 19YY contract]
		DIREXPWAG	Expenses - Directory(Wage)[These are actually at 19YY contract]
		ACCEXPWAG	Expenses - Accounting Dept.(Wage)[These are actually at 19YY contract]

	GOFEXPWAG	Expenses - General Office(Wage)[These are actually at 19YY contract]
	ENGEXPWAG	Expenses - Engineering Dept.(Wage) [These are actually at 19YY contract]
7	TOTDEP	Depreciation
8	FRNCONFRC	Furniture - Fraction of Construction
9	COBCONFRC	Central Office Buildings - Fraction of Construction
10	COECONFRC	Central Office Equipment - Fraction of Construction
11	STPCONFRC	Station Apparatus - Fraction of Construction
12	STCCONFRC	Station Connections - Fraction of Construction
13	DSTCONFRC	Distribution Plant - Fraction of Construction
14	OTBCONFRC	Other Buildings - Fraction of Construction
15	MVHCONFRC	Motor Vehicles - Fraction of Construction
16	FITTAXRAT	Taxes - Federal Income Tax Rate
17	TAXINCADJ	Taxable Income Adjustments
18	PRPTAXRAT	Taxes - Property Tax Rate
19	GRSTAXRAT	Taxes - Gross Receipts Rate
20	SSCTAXRAT	Taxes - Social Security Tax Rate
21	CAPTAXRAT	Taxes - Capital Tax Rate
22	SLITAXRAT	Taxes - State & Local Income Tax Rate
23	DEFTAX	Taxes - Deferred AD-ADR
24	FRCTAXCDTREL	Tax Credit - Fraction of Construction Realized as Tax Credit
25	FRCTAXCDTAMR	Tax Credit - Fraction of Tax Credit Reserve Amortized
26	NCSINVCHG	Investment change in Non Consolidated Subsidiaries
27	MSCOTHRES	Miscellaneous Other Resources(NET)
28	PRPITREUS	Prop. Interest in Earnings of Unconsol. Subsid
29	ITRIDCRAT	Interest Rate for IDC
30	MSCINCOTH	Income - Miscellaneous Other

III. Variables in the finance stream may be altered via substitute runstreams - See Section C.2.5 and Appendix XI for further information.

_PENDIX XA.5

List of Stock (S) and Flow/Stock (F/S) Variables

NAME	DEFINITION	'S or 'F/S'
ATTCEQAVG	Equity - Average AT&T Common	S
TOTCAPAVG	Capital - Average Total	S
RORATC	Rate of Return on Average Total Capital	F/S
RORCEQAVGATT	Rate of Return on AT&T Avg Common Equity	F/S
RORATCPAT	Rate of Return on Avg Total Capital(Pre All Tax)	F/S
RORATCPIT	Rate of Return on Avg Total Capital(Pre Income Tax)	F/S
RORATCPFT	Rate of Return on Avg Total Capital(Pre-Fit)	F/S
CFLATCRTO	Cash Flow/Average Total Capital	F/S
REVATCRTO	Revenue to Average Total Capital Ratio	F/S

APPENDIX XA.6

LIST OF VARIABLES LOADED IN SECOND RESTORED MODEL

*ADDDPT	DEPRECIABLE PLANT-ADDITIONS TO
*ATTCEQSLD	EQUITY-AT&T COMMON SOLD
*AVGCEQ	EQUITY-AVERAGE COMMON
*BVSAVG	BOOK VALUE PER SHARE-AVERAGE
*CEQ	EQUITY-COMMON
*DBTRTOACH	DEBT RATIO ACHIEVED
*DEFTAX	TAXES-DEFERRED AD-ADR
*DPSCMN	DIVIDENDS-COMMON PER SHARE
*EPS	EARNINGS PER SHARE
*EPSFDL	EARNINGS PER SHARE(FULLY DILUTED)
*FITTAX	TAXES-FEDERAL INCOME
*GRSPLT	PLANT-GROSS PLANT
*INCBDEITR	INCOME BEFORE INTEREST DEDUCTION
*ITRCON	INTEREST DURING CONSTRUCTION
*ITRLTMRAT	INTEREST RATE-LONG TERM(YLD ON NEW AAU ISSUES)
*ITRSTMRAT	INTEREST RATE-SHORT TERM (3 MONTH TREAS BILL RATE)
*MKTPCESHR	STOCK-MARKET PRICE PER SHARE
*NETPLT	PLANT-NET
*NEWMONREQ	REVENUE REQUIREMENTS-NEW MONEY REQUIREMENTS
*NEWMONCON	NEW MONEY TO CONSTRUCTION
*NEWOPRRTO	OPERATING RATIO-NEW
*NEWSHRCMNSLD	STOCK-NEW COMMON SHARES SOLD
*NOR	REVENUES-NET OPERATING
*OTHINC	INCOME-OTHER
*PAYRTO	PAYOUT RATIO
*PCEERNRTO	PRICE EARNINGS RATIO
*PRFDIV	DIVIDENDS-PREFERRED
*RORATCPIT	RATE OF RETURN ON AVG TOTAL CAPITAL (PRE INCOME TAX)
*RORATC	RATE OF RETURN ON AVERAGE TOTAL CAPITAL
*RORCEQAVGATT	RATE OF RETURN ON AT&T AVERAGE COMMON EQUITY
*ROREQTAVGATT	RATE OF RETURN ON AVERAGE AT&T EQUITY
*ROREQTAVGTOT	RATE OF RETURN ON AVERAGE TOTAL EQUITY
*RTE	RETAINED EARNINGS
*RTEANDDEP	RETAINED EARNINGS AND DEPRECIATION
*SSCTAX	TAXES-SOCIAL SECURITY
*TOTCAPAVG	CAPITAL-AVERAGE TOTAL
*TOTCAP	CAPITAL-TOTAL
*TOTCON	CONSTRUCTION-TOTAL
*TOTDBT	DEBT-TOTAL
*TOTDEPRES	DEPRECIATION RESERVE
*TOTDEP	DEPRECIATION
*TOTEQTSLD	EQUITY-TOTAL SOLD IN YEAR
*TOTEXPLDP	EXPENSES-TOTAL LESS DEPRECIATION
*TOTEXP	EXPENSES-TOTAL OPERATING WITH DEPRECIATION
*TOTREV	REVENUES-TOTAL

*TOTSHROUT	STOCK-TOTAL SHARES OUTSTANDING
*TOTSHRAVG	STOCK-AVERAGE TOTAL SHARES
*TOTTAXLFI	TAXES-TOTAL LESS FEDERAL INCOME (SLI+SSC+CAP+GRS+PRP)
*TOTTAX	TAXES-TOTAL (FEDERAL AND OTHER)
*WECTAXDEFCDT	TAX CREDIT-W.E.DEFERRED

APPENDIX XA.7

List of Variables Loaded With Historic Values

CPI	US Consumer Price Index
DUMVAR	User's Storage Variable
EPS	Earnings Per Share
NEWMONREQ	New Money Requirement
RORATC	Rate of Return on Average Total Capital
RORCEQAVGATT	Rate of Return on AT&T Average Common Equity
TIME	Time
TOTCON	Construction - Total
TOTDEP	Depreciation
TOTEMP	Employees - Total
TOTEXPLDP	Expenses - Total Less Depreciation
TOTREV	Revenue - Total

APPENDIX XB

Equations used by SOLVE — Appendix XB.1

Equations used To Compute Flow and Flow/Stock Variables — Appendix XB.2

APPENDIX XB.1

EQUATIONS USED BY SOLVE

EXPENSES

NOTE: Although the wage portions are named without the DYY notation they are in fact in constant dollars and are multiplied by an index to form the current dollar variable, TOTEXPWAG.

The non-wage expenses are input in current dollar amounts (i.e. no index is applied to them)

Current dollar values = Constant (DYY) * Index

```
      Current   Constant
MTCEXP=MTCEXPNWG+MTCEXPWAG--
TRFEXP=TRFEXPNWG+TRFEXPWAG /
COMEXP=COMEXPNWG+COMEXPWAG /
MKTEXP=MKTEXPNWG+MKTEXPWAG / These wage figures are in fact
DIREXP=DIREXPNWG+DIREXPWAG / as of Budget Year contract
ACCEXP=ACCEXPNWG+ACCEXPWAG /
GOFEXP=GOFEXPNWG+GOFEXPWAG /
ENGEXP=ENGEXPNWG+ENGEXPWAG--

OTHEXP=ADVEXP+OTPEXP+PBTEXP+RFDEXP

TOTEXPWAGDyy=MTCEXPWAG+TRFEXPWAG+COMEXPWAG+MKTEXPWAG+DIREXPWAG+
             ACCEXPWAG+GOFEXPWAG+ENGEXPWAG

TOTEXPWAG=TOTEXPWAGDyy*TOTEXPWAGIDX

TOTEXPNWG=MTCEXPNWG+TRFEXPNWG+COMEXPNWG+MKTEXPNWG+DIREXPNWG+
          ACCEXPNWG+GOFEXPNWG+ENGEXPNWG+OTHEXP

TOTEXPLDP=TOTEXPWAG+TOTEXPNWG

TOTEMP=MTCEMP+TRFEMP+COMEMP+MKTEMP+DIREMP+ACCEMP+GOFEMP+ENGEMP
```

REVENUES

```
LCLREV=LCLREVDyy*LCLREVIDX
TOLREVINT=TOLREVINTDyy*TOLREVINTIDX
TOLREVSTA=TOLREVSTADyy*TOLREVSTAIDX
MSCREV=MSCREVDyy*MSCREVIDX
UCLREV=UCLREVDyy*UCLREVIDX
```

TOTREV=LCLREV+TOLREVSTA+TOLREVINT+MSCREV-UCLREV

MESSAGES

TOLMSG=TOLMSGINT+TOLMSGSTA

CONSTRUCTION

TOTCONDyy=OSPCONDyy+COECONDyy+LDBCONDyy+STNCONDyy+GENCONDyy
TOTCON=TOTCONDyy*TOTCONIDX

Appendix XB.2

EQUATIONS USED TO COMPUTE FLOW/STOCK VARIABLES

RORATC = INCBDEITR/TOTCAPAVG *

RORCEQAVGATT = (RTE+CMNDIV)/ATTCEQAVG *

RORATCPAT = (INCBDEITR+TOTTAX)/TOTCAPAVG **

RORATCPIT = (INCBDEITR+FITTAX+SLITAX)/TOTCAPAVG **

RORATCPFT = (INCBDEITR+FITTAX)/TOTCAPAVG **

CFLATCRTO = (INCBDEITR + TOTDEP)/TOTCAPAVG **

REVATCRTO = TOTREV/TOTCAPAVG **

NOTE:

* The equations for these two series were resolved with Ms. Murphy. The results of adjusting these series have been fully tested and match the results obtained by Ms. Murphy.

** These equations have been implemented in the ILREP system but have not been fully tested, nor have the equations been resolved with Ms. Murphy. See memo written Dec. 30, 1974 by Ms. S. Tommaso regarding 'Cross-referencing the ILREP data base and V. Murphy's data base for the variables needed to adjust for inflation in the ILREP computing system'.

APPENDIX XC

Names and Descriptions of Base and Reference Models

INITIAL PROJECTIONS MODEL:

The base model for each quarterly update is called yyPROJn where yy represents the last two digits of the year for which budget information is provided and n refers to the quarterly update number from one to four. The IF independent variables used in the interface are Revenues (TOTREV) and Construction (TOTCON). Budget Data is identified as yyEPCn in the BUDGET clause of the DEFINE with a corresponding default to EPCn finance portions.

FINANCIAL OBJECTIVES MODEL:

The Financial Objective model for each of the updates is called yyOBJn where the values for yy and n are assigned as described above. The only difference in the interface to IF between this model and the BASE is the choice of Earnings Per Share(EPS) and Construction (TOTCON) as the independent variables.

NOMINAL GAME PLAN MODEL:

The Nominal Game Plan Model is identified as yyNGPn where the values of yy and n are also assigned as in yyPROJn. This basic model unlike the other two has until now been run outside of the ILREP environment due to the unique nature of its input to IF. The results however can be restored in any ILREP session and can thus take advantage of all of the data manipulation capabilities of the ILREP system. The generation of Nominal Game Plan is an interactive process requiring a series of IF runs. The input of each being a function of the previous run until the desired results are obtained. In final form the input is a Total Revenue(TOTREV), Construction (TOTCON) runstream with various value modifications in Total Revenues (TOTREV), Expenses (TOTEXP), Other Income (OTHINC), and Net Other Resources (NETOTHRES)

* Note - Due to improvements that were made to the ILREP data base between quarter 1 and quarter 2 updates a user wishing TO RESTORE any quarter 1 model (75PROJ1,75OBJ1 etc) must first restore some quarter 2 Model (75PROJ2 etc)

Appendix XD

Sample Runstreams and Output

INDEP	XD.2
DURING	XD.2
ON	XD.12
PRINT/PLOT MODIFIERS	XD.4
FINANCE	XD.2
BUDGET	XD.2
WITH HISTORICAL	XD.11
FROM	XD.10
FORMAT (and ON FILE)	XD.12
EXPLAIN	XD.1
DEFINE	XD.2
RESTORE	XD.3
STOP	XD.3
PRINT	XD.4
PLOT	XD.4
INPUT	XD.5
COMPUTE	XD.6
	XD.7
	XD.8
SOLVE	XD.2
SAVE	XD.2
GO	XD.2
ECHO	XD.12
JANUS CHART	XD.9
BAR CHART	XD.13
HISTOGRAM CHART	XD.14
DASHED and DOTTED LINE CHART	XD.15

NOTE: Preceding each of the runstreams shown in this appendix, the following two statements must appear:

```
@CALL ILREP
ID/PASSWORD/DEV
```

where ID is the user's identification initials and PASSWORD is a password given to the user by the ILREP administrator and DEV is the terminal device used for the ILREP session. DEV is used when Tektronix output is desired. Then the user replaces DEV with TEK. Otherwise, the /DEV can be omitted, in which case ILREP assumes the output device is a regular terminal such as an Execuport.

```
EXPLAIN EXPLAIN:
EXPLAIN VOCABULARY:
EXPLAIN VARIABLES:
EXPLAIN LIST:
STOP:
```

```
*RUN ESK,012=0030,CPM,99

*SYM,S PRINTS,,JOHNST

*XQT MDG*PMOD2,MODEL
ILREP 1.3   09 MAR 76 15:25:26
ID/PASSWORD/DEV :
MODEL BEING INITIALIZED
      INTEGRATED LONG RANGE ECONOMIC PLANS
:
/
C,3,1 EXPLAIN

THIS COMMAND  EXPLAINS  SPECIFIC PARTS OF THE LANGUAGE AND DATA.  IT HAS
THE FORM:

     EXPLAIN (OBJECT):

WHERE OBJECT  CAN  BE ANY ONE OF THE LANGUAGE OR DATA COMPONENTS (VERBS,
OBJECTS, MODIFIERS, VARIABLE NAMES,ETC.)

THE FIRST  TIME  A  USER  IS  AT  THE  TERMINAL,  A  REQUEST,  SUCH  AS:

     EXPLAIN EXPLAIN:

   LD BE ISSUED  FOR  THE  EXPLANATION  OF  THE  EXPLAIN  COMMAND.  THIS
EXPLANATION WILL BE PRINTED AT THE TERMINAL. THE USER WOULD THEN CHOOSE,
IN ALL PROBABILITY TO ENTER EITHER:

     EXPLAIN VOCABULARY:

          OR

     EXPLAIN VARIABLES:

          OR

     EXPLAIN LIST:

IN WHICH CASE  A COMPLETE LIST OF THE LANGUAGE VOCABULARY, (FOR WHICH HE
COULD THEN REQUEST  MORE  SPECIFIC  INFORMATION)  OR  A COMPLETE LIST OF
VARIABLE NAMES  OR  A  LIST  OF THE REMAINING EXPLAIN OBJECTS  WOULD  BE
PRINTED AT THE TERMINAL.*

NOTE: *SEE APPENDIX  XF  FOR A COMPLETE LIST OF THE LANGUAGE VOCABULARY.
       SEE APPENDIX  XA  FOR  A  COMPLETE  LIST  OF  VARIABLE  NAMES.
       SEE APPENDIX   XG   FOR   COMPLETE   LIST  OF  EXPLAIN   OBJECTS.
/
                          APPENDIX XF

   T OF ILREP VOCABULARY:

 VERBS        MODIFIERS                              OBJECTS

 EXPLAIN                                             EXPLAIN, ETC.
```

DEFINE	DURING,INDEP,FINANCE,BUDGET, FROM	MODEL=NAME
.STORE		MODEL=NAME
STOP		
PRINT	DURING,ON,PRINT/PLOT MODIFIERS, (PRINTPLOTMOD) WITH HISTORICAL,FORMAT (WITHHISTORIC)	VARIABLE=NAME(S)
PLOT	DURING,ON,PRINT/PLOT MODIFIERS, (PRINTPLOTMOD) WITH HISTORICAL (WITHHISTORIC)	VARIABLE=NAME(S)
CLEAR		ON,PLOT,PLOT MODIFIERS
INPUT	DURING, WITH HISTORICAL (WITHHISTORIC)	VARIABLE=NAME
SOLVE		MODEL=NAME(IMPLIED)
SAVE		MODEL=NAME(IMPLIED)
COMPUTE	DURING, WITH HISTORICAL (WITHHISTORIC)	VARIABLE=NAME(S)
GO		
ECHO		YES OR NO

VERBS AND MODIFIERS MUST BE FOLLOWED BY A COLON. A POUND SIGN (#) MAY BE USED TO CONTINUE A REQUEST ON ANOTHER LINE. FOR MORE SPECIFIC INFORMATION ON A VERB OR MODIFIER ENTER:

EXPLAIN VERB=NAME:
OR
EXPLAIN MODIFIER=NAME:

WHERE THE NAME OF THE VERB OR MODIFIER TO BE EXPLAINED SHOULD REPLACE THE WORD VERB=NAME OR THE WORD MODIFIER=NAME.

NOTE: PRINTPLOTMOD AND WITHHISTORIC ARE THE EXPLAIN OBJECTS USED TO EXPLAIN THE PRINT/PLOT MODIFIERS AND WITH HISTORIC MODIFIER RESPECTIVELY.

APPENDIX XA

LIST OF VARIABLES

VARIABLE NAMES AND DESCRIPTION (NAMES IN ALPHABETICAL ORDER)	EXPLAIN VARNAMES
VARIABLE NAMES AND DESCRIPTION (DESCRIPTION IN ALPHABETICAL ORDER)	EXPLAIN.VARDEFS
LIST OF PARTIALS, SUBTOTALS, TOTALS, IF INPUT, REPORT AND IF OUTPUT VARIABLES	EXPLAIN VARUSAGE
DETAILED LIST OF IF INPUT	EXPLAIN VARIFINPUT
T OF STOCK AND FLOW/STOCK VARIABLES	EXPLAIN VARSTCKFLOCK
LIST OF VARIABLES LOADED IN SECOND RESTORED MODEL	EXPLAIN VARRESTORE

LIST OF VARIABLES LOADED WITH HISTORIC VALUES — EXPLAIN VARHISTORIC

NOTE: WHEN YY APPEARS AT THE END OF A VARIABLE NAME, THE USER MUST SUBSTITUTE THE LAST 2 DIGITS OF THE CURRENT BUDGET YEAR, WITH THE EXCEPTION OF THE SERIES ADJSSRDYY AND UDJSSRDYY, WHERE YY ARE THE LAST 2 DIGITS OF THE YEAR PRIOR TO THE CURRENT BUDGET YEAR, SINCE THOSE SERIES REPRESENT THE YEAR PRIOR ADJUSTED AND UNADJUSTED VALUES OF THE STOCK SERIES AVAILABLE IN ILREP.

APPENDIX XG

LIST OF ADDITIONAL EXPLAIN OBJECTS

ILREP	EXPLANATION OF INTEGRATED LONG-RANGE ECONOMIC PLANNING MODEL
IF	EXPLANATION OF THE INTERACTIVE FINANCIAL MODEL RUNSTREAM
LANGUAGE	SYNTAX OF THE LANGUAGE
EQUATIONS	LIST OF EQUATION LISTS
EQSOLVE	LIST OF THE EQUATIONS USED IN SOLVE
EQFLOCK	LIST OF THE EQUATIONS TO COMPUTE FLOW/STOCK VARIABLES
VARIABLES	LIST OF VARIABLE LISTS
VARNAMES	LIST OF VARIABLES AND DESCRIPTION -NAMES ALPHABETIZED
VARDEFS	LIST OF VARIABLES AND DESCRIPTION -DESCRIPTION ALPHABETIZED
VARUSAGE	LIST OF PARTIALS, SUBTOTALS, TOTALS, IF INPUT, REPORT, IF OUTPUT
RIFINPUT	LIST OF IF INPUT VARIABLES
VARSTCKFLOCK	LIST OF STOCK AND FLOW/STOCK VARIABLES
VARRESTORE	LIST OF VARIABLES RESTORED ON SECOND RESTORE
VARHISTORIC	LIST OF VARIABLES WITH HISTORIC VALUES AVAILABLE
GENMODS	NAMES AND DESCRIPTIONS OF BASE AND REFERENCE MODELS
SAMPLES	SAMPLE RUNSTREAMS AND OUTPUT OF ILREP SESSIONS
ERRORS	ERROR MESSAGES AND RECOVERY
IFOUTPUT	LIST OF IF OUTPUT TITLES WITH ILREP VARIABLE NAMES
INCOMESTATE	LIST OF VARIABLES ON INCOME STATEMENT
DETINCOME	LIST OF VARIABLES ON DETAILED INCOME STATEMENT
EXTERNALFIN	LIST OF EXTERNAL FINANCING VARIABLES
BALANCE	LIST OF BALANCE SHEET VARIABLES
RATIO	LIST OF RATIO ANALYSIS VARIABLES
FINANCVALS	LIST OF FINANCE VARIABLES AND VALUES
FINANC75PRJ1	VALUES FOR 75PROJ1 FINANCE VARIABLES
FINANC750BJ1	VALUES FOR 750BJ1 FINANCE VARIABLES
FINANC75PRJ2	VALUES FOR 75PROJ2 FINANCE VARIABLES
FINANC750BJ2	VALUES FOR 750BJ2 FINANCE VARIABLES
SAMPLE1	RUNSTREAM USING EXPLAIN VERB
SAMPLE2	RUNSTREAM USING DEFINE VERB WITH BUDGET, FINANCE, INDEP, DURING MODIFIERS, AND SOLVE, SAVE, GO VERBS
SAMPLE3	RUNSTREAM USING RESTORE AND STOP VERBS
SAMPLE4	RUNSTREAM USING PRINT AND PLOT VERBS, ON AND PLOT MODS
SAMPLE5	RUNSTREAM USING INPUT VERB
SAMPLE6	RUNSTREAM USING COMPUTE WITH RATIO FUNCTION
MPLE7	RUNSTREAM USING COMPUTE WITH SHORTFALL FUNCTION
AMPLE8	RUNSTREAM USING COMPUTE WITH ADJUST FUNCTION
SAMPLE9	RUNSTREAM USING WITH HISTORICAL MODIFIER
SAMPLE10	RUNSTREAM USING DEFINE VERB WITH FROM MODIFIER
SAMPLE11	RUNSTREAM TO PRODUCE JANUS CHART AND ACCOMPANYING DATA LISTS

```
                AND CURVE LABELS
 AMPLE12        RUNSTREAM USING FORMAT AND ON FILE MODIFIERS
  MPLE13        RUNSTREAM TO PRODUCE BAR GRAPH
SAMPLE14        RUNSTREAM TO PRODUCE HISTOGRAM GRAPH
SAMPLE15        RUNSTREAM TO PRODUCE DASHED AND/OR DOTTED LINES
END ILREP
```

```
DEFINE USER75PROJ2:BUDGET=75EPC2:FINANCE=EPC2:INDEP REV,CON:#
DURING 1976-1985:
YES
SOLVE:
GO:
RESTORE 75PROJ2:
PRINT TOTREV,TOTREV$,EPS,EPS$,TOTEXPLDP,TOTEXPLDP$,RORCEQAVGATT,#
RORCEQAVGATT$:
SAVE:
STOP:
```

```
@CALL ILREP

@XQT CPM*PMOD.MODEL
ILREP 1.3   09 MAR 76 10:50:59
MODEL BEING INITIALIZED
      INTEGRATED LONG RANGE ECONOMIC PLANS
:
CKCR: MODEL NAME NOT UNIQUE
SM: DO YOU WISH TO OVERWRITE MODEL
IF IS NOW IN EXECUTION - PLEASE WAIT

@XQT CPM*IF14S.IF
 INTERACTIVE FINANCIAL AND PLANNING MODEL - JANUARY, 1975

 INTERACTIVE FINANCIAL AND PLANNING MODEL RUN TERMINATED NORMALLY

@XQT,R CPM*PMOD.MODEL
MODEL BEING RESTORED
RESTORING MODEL USER75PROJ2  DURING   1976-  1985 INDEP REV   -CON
BUDGET   1975 FINANCING EPC2   CREATED 09 MAR 76 10:50:59
MODELS BEING RESTORED
RESTORING MODEL KSEL775H     DURING   1974-  1985 INDEP REV   -CON
BUDGET   1975 FINANCING EPC2   CREATED 29 OCT 75 10:58:09
03/09/76
```

TIME	IF OUTPUT TOTREV	IF OUTPUT TOTREV $	IF OUTPUT EPS	IF OUTPUT EPS $
1976	32441.69500	32441.42600	5.21316	5.21290
1977	36763.08300	36763.17500	6.08043	6.08043
1978	40737.95500	40738.38900	5.97718	6.03558
1979	44604.43300	44603.90400	5.89138	5.89669
1980	48777.14600	48776.97800	5.80938	5.81518
1981	53639.64700	53639.29700	5.82473	5.83072
1982	59114.17500	59114.15900	6.19150	6.19844
1983	65115.38400	65114.78300	6.42070	6.42786
1984	71446.41400	71446.49600	6.36917	6.37705
1985	78496.10600	78496.16100	6.52499	6.53343

03/09/76

TIME	IF OUTPUT TOTEXPLDP	IF OUTPUT TOTEXPLDP $	IF OUTPUT RORCEQAVGATT	IF OUTPUT RORCEQAVGATT $
1976	17271.60000	17271.60000	.09576	.09576
1977	19626.50000	19626.50000	.10723	.10723
1978	22326.50000	22256.50000	.10074	.10168
1979	24910.80000	24910.80000	.09522	.09522
1980	27727.00000	27727.00000	.09032	.09031
1981	31027.19900	31027.19900	.08729	.08729
1982	34415.20000	34415.20000	.08933	.08932
1983	38394.39900	38394.39900	.08903	.08902

1984	42988.20000	42988.20000	.08496	.08496
85	47787.00000	47787.00000	.08382	.08382

END ILREP

```
@FREE CORE*75PROJ2.
FAC WARNING        100000000000

@FREE CORE*75PROJ1.
FAC WARNING        100000000000
```

```
RESTORE USER75PROJ2:
RESTORE 75PROJ2:
PRINT TOTREV,TOTREV$,EPS,EPS$,RORCEQAVGATT,RORCEQAVGATT$,TOTCON,TOTCON$:
STOP:
```

```
*CALL ILREP

*XQT CPM*PMOD,MODEL
ILREP 1.3    09 MAR 76 10:53:36
MODEL BEING INITIALIZED
      INTEGRATED LONG RANGE ECONOMIC PLANS
:
MODEL BEING RESTORED
RESTORING MODEL USER75PROJ2  DURING   1976=  1985 INDEP REV    =CON
BUDGET   1975 FINANCING EPC2   CREATED 09 MAR 76 10:53:01
MODELS BEING RESTORED
RESTORING MODEL KSEL775H     DURING   1974=  1985 INDEP REV    =CON
BUDGET   1975 FINANCING EPC2   CREATED 29 OCT 75 10:58:09
03/09/76
```

TIME	IF OUTPUT TOTREV	IF OUTPUT TOTREV $	IF OUTPUT EPS	IF OUTPUT EPS $
1976	32441.69500	32441.42600	5.21316	5.21290
1977	36763.08300	36763.17500	6.08043	6.08043
1978	40737.95500	40738.38900	5.97718	6.03558
1979	44604.43300	44603.90400	5.89138	5.89669
1980	48777.14600	48776.97800	5.80938	5.81518
1981	53639.64700	53639.29700	5.82473	5.83072
1982	59114.17500	59114.15900	6.19150	6.19844
1983	65115.38400	65114.78300	6.42070	6.42786
1984	71446.41400	71446.49600	6.36917	6.37705
1985	78496.10600	78496.16100	6.52499	6.53343

03/09/76

TIME	IF OUTPUT RORCEQAVGATT	IF OUTPUT RORCEQAVGATT $	IF OUTPUT TOTCON	IF OUTPUT TOTCON $
1976	.09576	.09576	10977.55300	10978.00000
1977	.10723	.10723	12477.19900	12477.00000
1978	.10074	.10168	12965.47000	12966.00000
1979	.09522	.09522	14062.09900	14062.00000
1980	.09032	.09031	15566.93700	15567.00000
1981	.08729	.08729	16351.96700	16352.00000
1982	.08933	.08932	18004.99500	18005.00000
1983	.08903	.08902	19403.65400	19404.00000
1984	.08496	.08496	21116.40200	21116.00000
1985	.08382	.08382	22628.24900	22629.00000

```
SAVE MODEL  USER75PROJ2  YES OR NO
END ILREP


  REE CORE*75PROJ2.
FAC WARNING        100000000000

*FREE CORE*75PROJ1.
```

```
DEFINE MODTEST:BUDGET=75EPC2:DURING 1976-1985:INDEP REV,CON:
YES
COMPUTE A1 = SERIES(TOTREV):WITH HISTORICAL:
COMPUTE B2 = SERIES(CPI):WITH HISTORICAL:
COMPUTE C3 = SERIES(TOTEMP):WITH HISTORICAL:
COMPUTE D4 = SERIES(EPS):WITH HISTORICAL:
COMPUTE E5 = SERIES(TOTCON):WITH HISTORICAL:
COMPUTE F6 = SERIES(RORCEQAVGATT):WITH HISTORICAL:
COMPUTE G7 = SERIES(RORATC):WITH HISTORICAL:
COMPUTE H8 = SERIES(TOTDEP):WITH HISTORICAL:
COMPUTE I9 = SERIES(NEWMONREQ):WITH HISTORICAL:
COMPUTE J10 = SERIES(TOTEXPLDP):WITH HISTORICAL:
COMPUTE AA1 = SERIES(TOTREV):WITH HISTORICAL:
COMPUTE BB2 = SERIES(CPI):WITH HISTORICAL:
COMPUTE CC3 = SERIES(TOTEMP):WITH HISTORICAL:
COMPUTE DD4 = SERIES(EPS):WITH HISTORICAL:
COMPUTE EE5 = SERIES(TOTCON):WITH HISTORICAL:
COMPUTE FF6 = SERIES(RORCEQAVGATT):WITH HISTORICAL:
COMPUTE GG7 = SERIES(RORATC):WITH HISTORICAL:
COMPUTE HH8 = SERIES(TOTDEP):WITH HISTORICAL:
COMPUTE II9 = SERIES(NEWMONREQ):WITH HISTORICAL:
COMPUTE JJ10 = SERIES(TOTEXPLDP):WITH HISTORICAL:
INPUT DUMVAR:WITH HISTORICAL:
1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.
14.
17.
18.
19.
20.
21.
22.
23.
24.
25.
26.
COMPUTE temp=SERIES(DUMVAR):WITH HISTORICAL:
INPUT DUMVAR:WITH HISTORICAL:
```

```
51.
50.
49.
48.
47.
46.
45.
44.
43.
42.
41.
40.
39.
38.
35.
34.
33.
32.
31.
30.
29.
28.
27.
26.
_rint a1,b2,c3,d4,e5,f6,g7,h8,i9,j10,aa1,bb2,cc3,dd4,ee5,#
ff6,gg7,hh8,ii9,jj10:during 1976-1976:
PLOT A1,B2,C3,D4,E5,F6,G7,H8,I9,J10 .VS. temp#
   .AND. AA1,BB2,CC3,DD4,EE5,FF6,GG7,HH8,II9,JJ10 .VS. dumvar:#
ctln=yes:ctpt=26.:xcen=yes:#
WITH HISTORICal:#
xmin=1.:xmax=51.:xdiv=10.:xval=no:yint=yes:#
xtxt=1960,1965,1970,1975,1980,1985,1980,1975,1970,1965,1960:#
legn=a1,b2,c3,d4,e5,f6,g7,h8,i9,j10,#
    aa1,bb2,cc3,dd4,ee5,ff6,gg7,hh8,ii9,jj10:#
char=abcdefghij1234567890:cint=11.,11.,11.,11.,11.,11.,11.,11.,11.,#
11.,11.,11.,11.,11.,11.,11.,11.,11.,11.:#
main=example of a janus plot:xlab=years:ylab=dollars:#
SUBT=EXAMPLE OF A SUBTITLE:#
list=yes:
STOP:
NO
```

3/08/76

TIME	A1 *	B2 *	C3 *	D4 *
1976	32441.69500	1.73700	834.30000	5.21290

3/[illegible]/76

TIME	E5 *	F6 *	G7 *	H8 *
1976	10977.55300	.09576	.08183	4705.00000

3/08/76

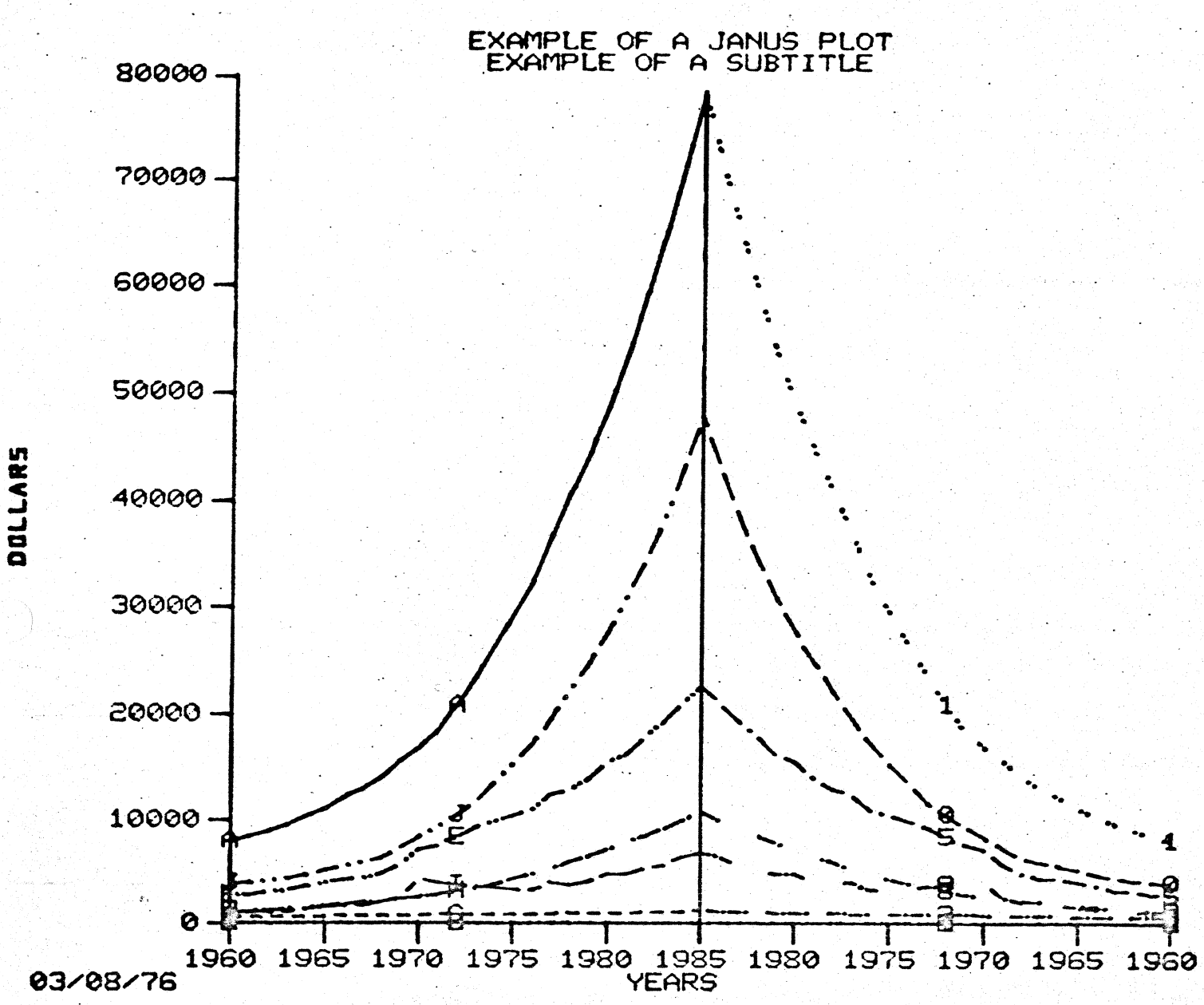
TIME	I9 *	J10 *	AA1 *	BB2 *
.976	3155.93550	17271.60000	32441.69500	1.73700

3/09/76

TIME	CC3 *	DD4 *	EE5 *	FF6 *
.976	834.30000	5.21290	10977.55300	.09576

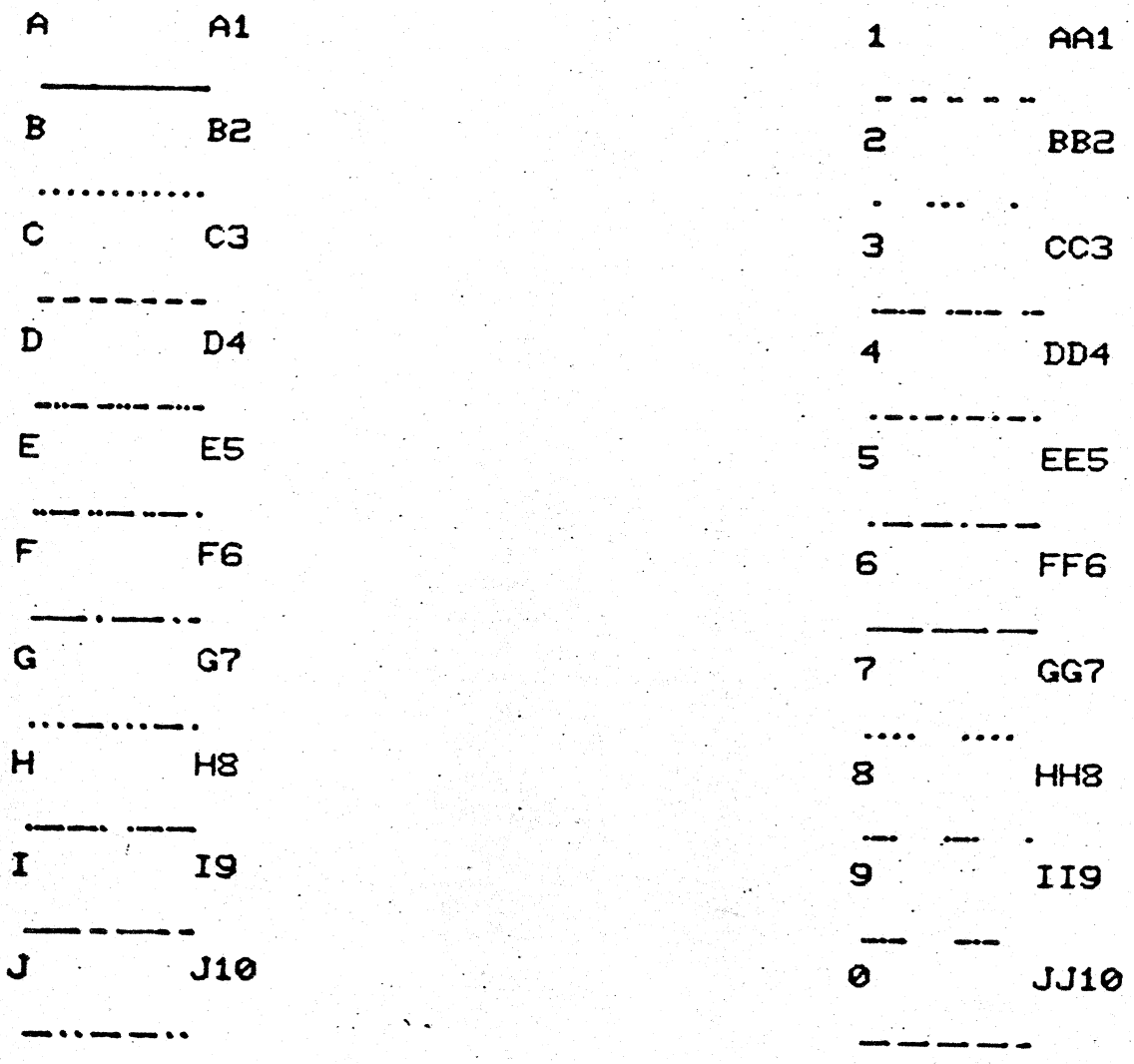
/09/76

IME	GG7 *	HH8 *	II9 *	JJ10 *
976	.08183	4705.00000	3155.93550	17271.60000


EXAMPLE OF A JANUS PLOT
EXAMPLE OF A SUBTITLE
80000
70000
60000
50000
40000
30000
20000
10000
0
DOLLARS
1960 1965 1970 1975 1980 1985 1980 1975 1970 1965 1960
YEARS
03/08/76

03/08/76

EXAMPLE OF A JANUS PLOT
EXAMPLE OF A SUBTITLE
DOLLARS



03/08/76

EXAMPLE OF A JANUS PLOT
EXAMPLE OF A SUBTITLE
DOLLARS

YEARS	A1	B2	C3	D4
1960	7920.45390	.88700	580.40500	2.77006
1961	8414.42600	.89600	566.64800	2.76006
1962	8980.20800	.90600	563.86100	2.90006
1963	9568.96100	.91700	571.36600	3.03006
1964	10305.99300	.92900	589.66700	3.24006
1965	11061.78200	.94500	611.93100	3.41006
1966	12138.26500	.97200	650.78800	3.69006
1967	13009.20300	1.00000	656.31300	3.79006
1968	14100.01400	1.04200	679.11000	3.75006
1969	15683.76600	1.09800	735.85600	4.00006
1970	16954.88100	1.16300	722.98000	3.99006
1971	18510.76400	1.21300	776.75500	3.99006
1972	20887.57100	1.25300	777.86900	4.34006
73	23510.04100	1.33100	798.93400	5.06006
1976	32441.69500	1.73700	834.30000	5.21296
1977	36763.08300	1.84800	863.90000	6.08043
1978	40737.95500	1.94900	892.50000	6.03558
1979	44604.43300	2.03700	918.90000	5.89669
1980	48777.14600	2.12900	946.50000	5.81518
1981	53639.64700	2.22500	976.10000	5.83072
1982	59114.17500	2.32500	1009.40000	6.19844
1983	65115.38400	2.42900	1046.39990	6.42786
1984	71446.41400	2.53900	1087.00000	6.37705
1985	78496.10600	2.65300	1128.50000	6.53343

03/08/76

EXAMPLE OF A JANUS PLOT
EXAMPLE OF A SUBTITLE
DOLLARS

YEARS	E5	F6	G7	H8
1960	2658.38100	.10003	.07690	1007.84000
1961	2696.02600	.09461	.07410	1099.94000
1962	2975.98000	.09472	.07450	1219.00700
1963	3135.85400	.09488	.07450	1332.14600
1964	3518.89600	.09506	.07560	1469.42300
1965	3917.64400	.09527	.07650	1624.48500
1966	4192.56400	.09861	.07910	1775.12100
1967	4309.62000	.09726	.07770	1949.31400
1968	4742.14390	.09257	.07500	2138.14090
1969	5677.51090	.09509	.07730	2315.70990
1970	7159.17990	.09159	.07620	2531.97190
1971	7564.10690	.08865	.07460	2764.23990
72	8305.66600	.09365	.07730	3035.70700
1973	9321.82890	.10471	.08300	3325.72000
1976	10977.55300	.09576	.08183	4705.00000
1977	12477.19900	.10723	.08793	5283.00000
1978	12965.47000	.10168	.08610	5888.00000
1979	14062.09900	.09522	.08353	6497.00000
1980	15566.93700	.09031	.08140	7140.00000
1981	16351.96700	.08729	.08005	7795.00000
1982	18004.99500	.08932	.08126	8473.00000
1983	19403.65400	.08902	.08126	9197.00000
1984	21116.40200	.08496	.07925	9981.00000
1985	22628.24900	.08382	.07878	10840.00000

3/08/76

EXAMPLE OF A JANUS PLOT
EXAMPLE OF A SUBTITLE
DOLLARS

YEARS	I9	J10	AA1	BB2
1960	1163.06590	3747.18790	7920.45390	.88700
1961	1058.92700	3913.87600	8414.42600	.89600
1962	1099.47300	4086.77800	8980.20800	.90600
1963	1027.20590	4282.40690	9568.96100	.91700
1964	1313.89500	4662.68100	10305.99300	.92900
1965	1481.97800	5048.96600	11061.78200	.94500
1966	1665.78700	5487.99100	12138.26500	.97200
1967	1668.77100	5871.55490	13009.20300	1.00000
1968	2040.03990	6310.30100	14100.01400	1.04200
1969	2412.97600	7299.41600	15683.76600	1.09800
19[illegible]	4172.95200	8339.96890	16954.88100	1.16300
19[illegible]1	3931.00400	9314.76400	18510.76400	1.21300
1972	3669.54900	10488.04100	20887.57100	1.25300
1973	3527.92700	11682.56200	23510.04100	1.33100
1976	3155.93550	17271.60000	32441.69500	1.73700
1977	3948.15190	19626.50000	36763.08300	1.84800
1978	3697.86020	22326.50000	40737.95500	1.94900
1979	4086.52330	24910.80000	44604.43300	2.03700
1980	4760.86560	27727.00000	48777.14600	2.12900
1981	4716.10170	31027.19900	53639.64700	2.22500
1982	5255.61290	34415.20000	59114.17500	2.32500
1983	5611.77500	38394.39900	65115.38400	2.42900
1984	6414.75980	42988.20000	71446.41400	2.53900
1985	6824.49760	47787.00000	78496.10600	2.65300

03/08/76

EXAMPLE OF A JANUS PLOT
EXAMPLE OF A SUBTITLE
DOLLARS

YEARS	CC3	DD4	EE5	FF6
1960	580.40500	2.77000	2658.38100	.10003
1961	566.64800	2.76000	2696.02600	.09461
1962	563.86100	2.90000	2975.98000	.09472
1963	571.36600	3.03000	3135.85400	.09488
1964	589.66700	3.24000	3518.89600	.09506
1965	611.93100	3.41000	3917.64400	.09527
1966	650.72800	3.69000	4192.56400	.09861
1967	656.31300	3.79000	4309.62000	.09726
1968	679.11000	3.75000	4742.14390	.09257
1969	735.85600	4.00000	5677.51090	.09509
1970	722.98000	3.99000	7159.17990	.09159
1971	776.75500	3.99000	7564.10690	.08865
1972	777.86900	4.34000	8305.66600	.09365
1973	798.93400	5.06000	9321.82890	.10471
1976	834.30000	5.21290	10977.55300	.09576
1977	863.90000	6.08043	12477.19900	.10723
1978	892.50000	6.03558	12965.47000	.10168
1979	918.90000	5.89669	14062.09900	.09522
1980	946.50000	5.81518	15566.93700	.09031
1981	976.10000	5.83072	16351.96700	.08729
1982	1009.40000	6.19844	18004.99500	.08932
1983	1046.39990	6.42786	19403.65400	.08902
1984	1087.00000	6.37705	21116.40200	.08496
1985	1128.50000	6.53343	22628.24900	.08382

03/08/76

EXAMPLE OF A JANUS PLOT
EXAMPLE OF A SUBTITLE
DOLLARS

YEARS	GG7	HH8	II9	JJ10
1960	.07690	1007.84000	1163.06590	3747.18790
1961	.07410	1099.94000	1058.92700	3913.87600
1962	.07450	1219.00700	1099.47300	4086.77800
1963	.07450	1332.14600	1027.20590	4282.40690
1964	.07560	1469.42300	1313.89500	4662.68100
1965	.07650	1624.48500	1481.97800	5048.96600
1966	.07910	1775.12100	1665.78700	5487.99100
1967	.07770	1949.31400	1668.77100	5871.55490
1968	.07500	2138.14090	2040.03990	6310.30100
1969	.07730	2315.70990	2412.97600	7299.41600
1970	.07620	2531.97190	4172.95200	8339.96890
1971	.07460	2764.23990	3931.00400	9314.76400
1972	.07730	3035.70700	3669.54900	10488.04100
1973	.08300	3325.72000	3527.92700	11682.56200
1976	.08183	4705.00000	3155.93550	17271.60000
1977	.08793	5283.00000	3948.15190	19626.50000
1978	.08610	5888.00000	3697.86020	22326.50000
1979	.08353	6497.00000	4086.52330	24910.80000
1980	.08140	7140.00000	4760.86560	27727.00000
1981	.08005	7795.00000	4716.10170	31027.19900
1982	.08126	8473.00000	5255.61290	34415.20000
1983	.08126	9197.00000	5611.77500	38394.39900
1984	.07925	9981.00000	6414.75980	42988.20000
1985	.07878	10840.00000	6824.49760	47787.00000

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MODEL BEING INITIALIZED
      INTEGRATED LONG RANGE ECONOMIC PLANS
:
SM: ILLEGAL STATEMENT
03/09/76
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TIME	A1	B2	C3	D4
1976	32441.69500	1.73700	834.30000	5.21290

03/09/76

TIME	E5	F6	G7	H8
1976	10977.55300	.09576	.08183	4705.00000

03/09/76

TIME	I9	J10	AA1	BB2
1976	3155.93550	17271.60000	32441.69500	1.73700

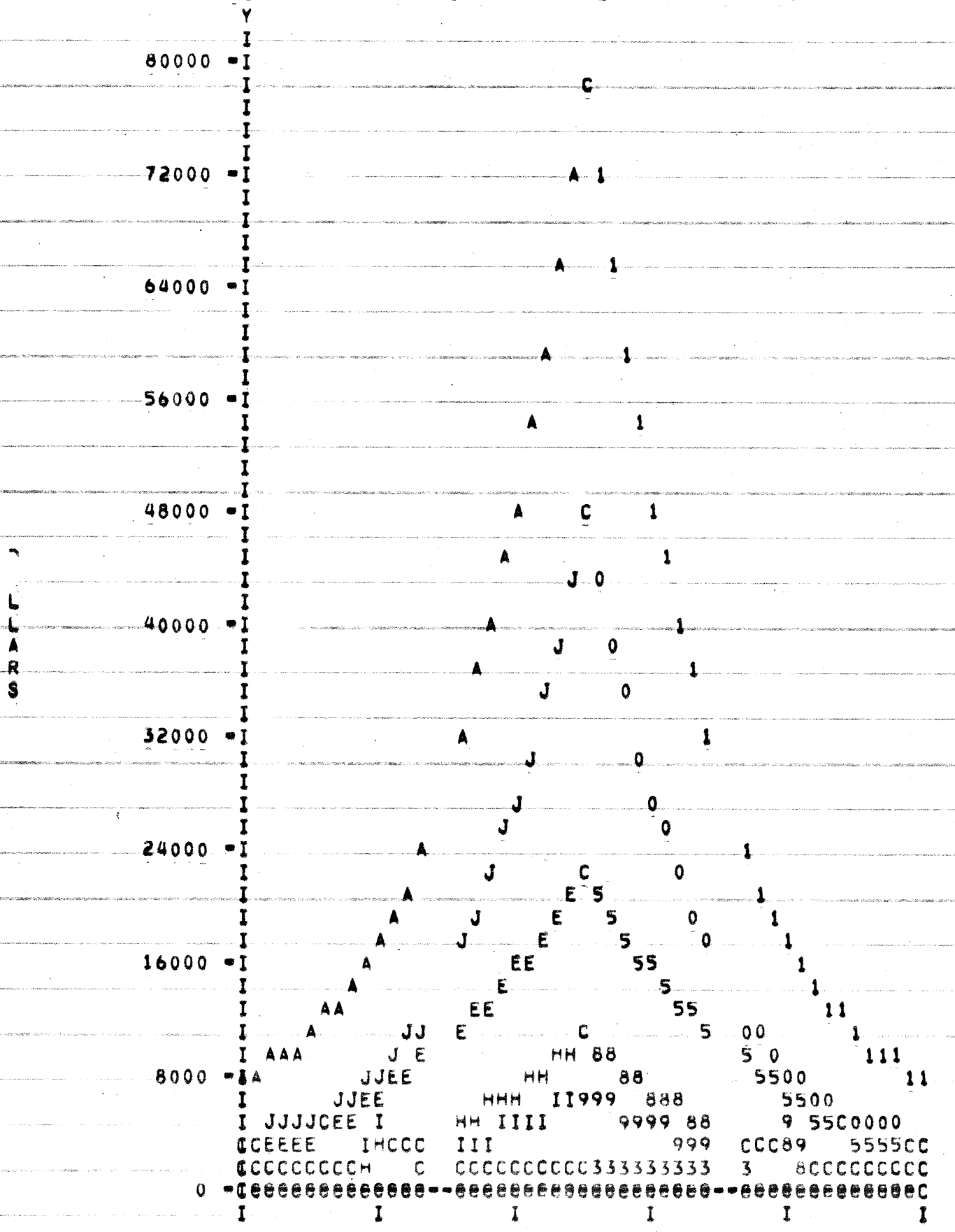
03/09/76

TIME	CC3	DD4	EE5	FF6
1976	834.30000	5.21290	10977.55300	.09576

03/09/76

TIME	GG7	HH8	II9	JJ10
1976	.08183	4705.00000	3155.93550	17271.60000

EXAMPLE OF A JANUS PLOT - EXAMPLE OF A SUBTITLE



LEGEND

-	A1
B	B2
C	C3
D	D4
E	E5
F	F6
G	G7
H	H8
I	I9
J	J10
1	AA1
2	BB2
3	CC3
4	DD4
5	EE5
6	FF6
7	GG7
8	HH8
9	II9
0	JJ10

03/09/76

EXAMPLE OF A JANUS PLOT * EXAMPLE OF A SUB

DOLLARS

A	A1
B	B2
C	C3
D	D4
E	E5
F	F6
G	G7
H	H8
I	I9
J	J10

```
1       AA1

2       BB2

3       CC3

4       DD4

5       EE5

6       FF6

7       GG7

8       HH8

9       II9

0       JJ10
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 1   1960
 2   1965
 3   1970
 4   1975
 5   1980
 6   1985
 7   1980
 8   1975
 9   1970
10   1965
11   1960
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03/09/76

EXAMPLE OF A JANUS PLOT
EXAMPLE OF A SUBTITLE
DOLLARS

YEARS	A1	B2	C3	D4
1960	7920.45390	.88700	580.40500	2.77000
1961	8414.42600	.89600	566.64800	2.76000
962	8980.20800	.90600	563.86100	2.90000
1963	9568.96100	.91700	571.36600	3.03000
1964	10305.99300	.92900	589.66700	3.24000
1965	11061.78200	.94500	611.93100	3.41000
1966	12138.26500	.97200	650.78800	3.69000

1967	13009.20300	1.00000	656.31300	3.79000
68	14100.01400	1.04200	679.11000	3.75000
69	15683.76600	1.09800	735.85600	4.00000
1970	16954.88100	1.16300	722.98000	3.99000
1971	18510.76400	1.21300	776.75500	3.99000
1972	20887.57100	1.25300	777.86900	4.34000
1973	23510.04100	1.33100	798.93400	5.06000
1976	32441.69500	1.73700	834.30000	5.21290
1977	36763.08300	1.84800	863.90000	6.08043
1978	40737.95500	1.94900	892.50000	6.03558
1979	44604.43300	2.03700	918.90000	5.89669
1980	48777.14600	2.12900	946.50000	5.81518
1981	53639.64700	2.22500	976.10000	5.83072
1982	59114.17500	2.32500	1009.40000	6.19844
1983	65115.38400	2.42900	1046.39990	6.42786
1984	71446.41400	2.53900	1087.00000	6.37705
1985	78496.10600	2.65300	1128.50000	6.53343

03/09/76

EXAMPLE OF A JANUS PLOT
EXAMPLE OF A SUBTITLE
DOLLARS

YEARS	E5	F6	G7	H8
1960	2658.38100	.10003	.07690	1007.84000
961	2696.02600	.09461	.07410	1099.94000
962	2975.98000	.09472	.07450	1219.00700
1963	3135.85400	.09488	.07450	1332.14600
1964	3518.89600	.09506	.07560	1469.42300
1965	3917.64400	.09527	.07650	1624.48500
1966	4192.56400	.09861	.07910	1775.12100
1967	4309.62000	.09726	.07770	1949.31400
1968	4742.14390	.09257	.07500	2138.14090
1969	5677.51090	.09509	.07730	2315.70990
1970	7159.17990	.09159	.07620	2531.97190
1971	7564.10690	.08865	.07460	2764.23990
1972	8305.66600	.09365	.07730	3035.70700
1973	9321.82890	.10471	.08300	3325.72000
1976	10977.55300	.09576	.08183	4705.00000
1977	12477.19900	.10723	.08793	5283.00000
1978	12965.47000	.10168	.08610	5888.00000
1979	14062.09900	.09522	.08353	6497.00000
1980	15566.93700	.09031	.08140	7140.00000
1981	16351.96700	.08729	.08005	7795.00000
1982	18004.99500	.08932	.08126	8473.00000
1983	19403.65400	.08902	.08126	9197.00000
1984	21116.40200	.08496	.07925	9981.00000
1985	22628.24900	.08382	.07878	10840.00000

03/09/76

EXAMPLE OF A JANUS PLOT
EXAMPLE OF A SUBTITLE
DOLLARS

YEARS	I9	J10	AA1	BB2

1960	1163.06590	3747.18790	7920.45390	.88700
1961	1058.92700	3913.87600	8414.42600	.89600
1962	1099.47300	4086.77800	8980.20800	.90600
1963	1027.20590	4282.40690	9568.96100	.91700
1964	1313.89500	4662.68100	10305.99300	.92900
1965	1481.97800	5048.96600	11061.78200	.94500
1966	1665.78700	5487.99100	12138.26500	.97200
1967	1668.77100	5871.55490	13009.20300	1.00000
1968	2040.03990	6310.30100	14100.01400	1.04200
1969	2412.97600	7299.41600	15683.76600	1.09800
1970	4172.95200	8339.96890	16954.88100	1.16300
1971	3931.00400	9314.76400	18510.76400	1.21300
1972	3669.54900	10488.04100	20887.57100	1.25300
1973	3527.92700	11682.56200	23510.04100	1.33100
1976	3155.93550	17271.60000	32441.69500	1.73700
1977	3948.15190	19626.50000	36763.08300	1.84800
1978	3697.86020	22326.50000	40737.95500	1.94900
1979	4086.52330	24910.80000	44604.43300	2.03700
1980	4760.86560	27727.00000	48777.14600	2.12900
1981	4716.10170	31027.19900	53659.64700	2.22500
1982	5255.61290	34415.20000	59114.17500	2.32500
1983	5611.77500	38394.39900	65115.38400	2.42900
1984	6414.75980	42988.20000	71446.41400	2.53900
1985	6824.49760	47787.00000	78496.10600	2.65300

07/09/76

EXAMPLE OF A JANUS PLOT
EXAMPLE OF A SUBTITLE
DOLLARS

YEARS	CC3	DD4	EE5	FF6
1960	580.40500	2.77000	2658.38100	.10003
1961	566.64800	2.76000	2696.02600	.09461
1962	563.86100	2.90000	2975.98000	.09472
1963	571.36600	3.03000	3135.85400	.09488
1964	589.66700	3.24000	3518.89600	.09506
1965	611.93100	3.41000	3917.64400	.09527
1966	650.78800	3.69000	4192.56400	.09861
1967	656.31300	3.79000	4309.62000	.09726
1968	679.11000	3.75000	4742.14390	.09257
1969	735.85600	4.00000	5677.51090	.09509
1970	722.98000	3.99000	7159.17990	.09159
1971	776.75500	3.99000	7564.10690	.08865
1972	777.86900	4.34000	8305.66600	.09365
1973	798.93400	5.06000	9321.82890	.10471
1976	834.30000	5.21290	10977.55300	.09576
1977	863.90000	6.08043	12477.19900	.10723
1978	892.50000	6.03558	12965.47000	.10168
1979	918.90000	5.89669	14062.09900	.09522
1980	946.50000	5.81518	15566.93700	.09031
1981	976.10000	5.83072	16351.96700	.08729
982	1009.40000	6.19844	18004.99500	.08932
1983	1046.39990	6.42786	19403.65400	.08902
1984	1087.00000	6.37705	21116.40200	.08496
1985	1128.50000	6.53343	22628.24900	.08382

07/09/76

EXAMPLE OF A JANUS PLOT
EXAMPLE OF A SUBTITLE
DOLLARS

YEARS	GG7	HH8	II9	JJ10
1960	.07690	1007.84000	1163.06590	3747.18790
1961	.07410	1099.94000	1058.92700	3913.87600
1962	.07450	1219.00700	1099.47300	4086.77800
1963	.07450	1332.14600	1027.20590	4282.40690
1964	.07560	1469.42300	1313.89500	4662.68100
1965	.07650	1624.48500	1481.97800	5048.96600
1966	.07910	1775.12100	1665.78700	5487.99100
1967	.07770	1949.31400	1668.77100	5871.55490
1968	.07500	2138.14090	2040.03990	6310.30100
1969	.07730	2315.70990	2412.97600	7299.41600
1970	.07620	2531.97190	4172.95200	8339.96890
1971	.07460	2764.23990	3931.00400	9314.76400
1972	.07730	3035.70700	3669.54900	10488.04100
1973	.08300	3325.72000	3527.92700	11682.56200
1976	.08183	4705.00000	3155.93550	17271.60000
1977	.08793	5283.00000	3948.15190	19626.50000
1978	.08610	5888.00000	3697.86020	22326.50000
1979	.08353	6497.00000	4086.52330	24910.80000
1980	.08140	7140.00000	4760.86560	27727.00000
1981	.08005	7795.00000	4716.10170	31027.19900
'82	.08126	8473.00000	5255.61290	34415.20000
.983	.08126	9197.00000	5611.77500	38394.39900
1984	.07925	9981.00000	6414.75980	42988.20000
1985	.07878	10840.00000	6824.49760	47787.00000

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END ILREP

@FREE CORE*75PROJ2.
FAC WARNING          100000000000

@FREE CORE*75PROJ1.
FAC WARNING          100000000000
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DEFINE MODTEST:BUDGET=75EPC2:DURING 1976-1985:INDEP REV,CON:
YES
INPUT TOTREV:WITH HISTORICAL:
100.
100.
100.
200.
200.
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450.
500.
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500.
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600.
700.
800.
800.
800.
800.
INPUT PERCENT TOTREV:WITH HISTORICAL:
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.5
YES
.5
INPUT PERCENT TOTREV:WITH HISTORICAL:DURING 1983-1983:
YES
.5
YES
.5
PRINT TOTREV:WITH HISTORICAL:
STOP:
NO
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*CALL ILREP

*XQT CPM*PMOD,MODEL
ILREP 1.3    09 MAR 76 10:55:14
MODEL BEING INITIALIZED
      INTEGRATED LONG RANGE ECONOMIC PLANS
:
SM: ILLEGAL STATEMENT
 APPLY PERCENT TO ENTIRE HISTORICAL TIME
 SPAN = YES OR NO
 INPUT PERCENT IN DECIMAL FOR FROM .1 TO 1.9
 APPLY PERCENT TO ENTIRE PROJECTED
 SPAN = YES OR NO
 INPUT PERCENT IN DECIMAL FOR FROM .1 TO 1.9
 APPLY PERCENT TO ENTIRE HISTORICAL TIME
 SPAN = YES OR NO
 INPUT PERCENT IN DECIMAL FOR FROM .1 TO 1.9
 APPLY PERCENT TO ENTIRE PROJECTED
 SPAN = YES OR NO
 INPUT PERCENT IN DECIMAL FOR FROM .1 TO 1.9
03/09/76
```

TIME	TOTREV
60	25.00000
1961	25.00000
1962	25.00000
1963	50.00000
1964	50.00000
1965	50.00000
1966	50.00000
1967	75.00000
1968	75.00000
1969	75.00000
1970	75.00000
1971	112.50000
1972	112.50000
1973	112.50000
1976	250.00000
1977	250.00000
1978	250.00000
1979	NOT AVAILABLE
1980	300.00000
1981	350.00000
1982	400.00000
1983	200.00000
1984	400.00000
1985	400.00000

```
    ILREP

*FREE CORE*75PROJ2,
FAC WARNING        100000000000
```

```
RESTORE 75PROJ2:
PRINT MTCEXP,NETPLT,TOTTEL,MANTEL,MTCEMP:
COMPUTE MTCEXPMTCEMP=RATIO(MTCEXP,MTCEMP):
COMPUTE NETPLTMTCEMP=RATIO(NETPLT,MTCEMP):
COMPUTE TOTTELMTCEMP=RATIO(TOTTEL,MTCEMP):
COMPUTE MANTELMTCEMP=RATIO(MANTEL,MTCEMP):
PRINT MTCEXPMTCEMP,NETPLTMTCEMP,TOTTELMTCEMP,MANTELMTCEMP:
STOP:
```

```
*CALL ILREP

*XQT CPM*PMOD.MODEL
ILREP 1.3   09 MAR 76 10:55:49
MODEL BEING INITIALIZED
      INTEGRATED LONG RANGE ECONOMIC PLANS
:
MODEL BEING RESTORED
RESTORING MODEL KSEL775H     DURING   1974*  1985 INDEP REV   *CON
BUDGET   1975 FINANCING EPC2   CREATED 29 OCT 75 10:58:09
03/09/76
```

TIME	MTCEXP	NETPLT	TOTTEL	MANTEL
1976	6992.00000	76361.60100	123521.00000	63700.00000
1977	7724.00000	83393.56300	128821.00000	65700.00000
1978	8603.00000	90305.95500	134121.00000	67600.00000
1979	9601.00000	97697.34600	139521.00000	69500.00000
1980	10621.00000	105939.75000	145021.00000	71400.00000
1981	11728.00000	114306.42000	150621.00000	73400.00000
1982	12905.00000	123636.03000	156221.00000	75400.00000
1983	14262.00000	133630.42000	161821.00000	77400.00000
1984	15699.00000	144540.32000	167421.00000	79400.00000
1985	17339.00000	156093.17000	172921.00000	81400.00000

03/09/76

TIME	MTCEMP
1976	384.00000
1977	403.90000
1978	424.15000
1979	443.75000
1980	462.40000
1981	480.70000
1982	500.35000
1983	521.70000
1984	544.10000
1985	567.70000

03/09/76

TIME	MTCEXPMTCEMP *	NETPLTMTCEMP *	TOTTELMTCEMP *	MANTELMTCEMP *
1976	18.20833	198.85834	321.66927	165.88542
77	19.12355	206.47082	318.94281	162.66402
1978	20.28292	212.91042	316.21124	159.37758
1979	21.63606	220.16303	314.41352	156.61972
1980	22.96929	229.10846	313.62673	154.41176
1981	24.39775	237.79161	313.33680	152.69399

```
1982          25.79195        247.09910        312.22344        150.69451
1983          27.33755        256.14420        310.18018        148.36113
1984          28.85315        265.65030        307.70263        145.92906
1985          30.54254        274.95716        304.59926        143.38559

END ILREP

@FREE CORE*75PROJ2.

@FREE CORE*75PROJ1.
FAC WARNING          100000000000
```

```
RESTORE 75PROJ2:
RESTORE 75PROJ1:
PRINT TOTREV,TOTREV$:
COMPUTE REVSHTFL=SHORTFALL(TOTREV,TOTREV$):
COMPUTE REVPCTSHTFL=PCTSHORTFALL(TOTREV,TOTREV$):
PRINT REVSHTFL,REVPCTSHTFL:
PLOT REVSHTFL:MAIN= REVSHTFL:
STOP:
NO
```

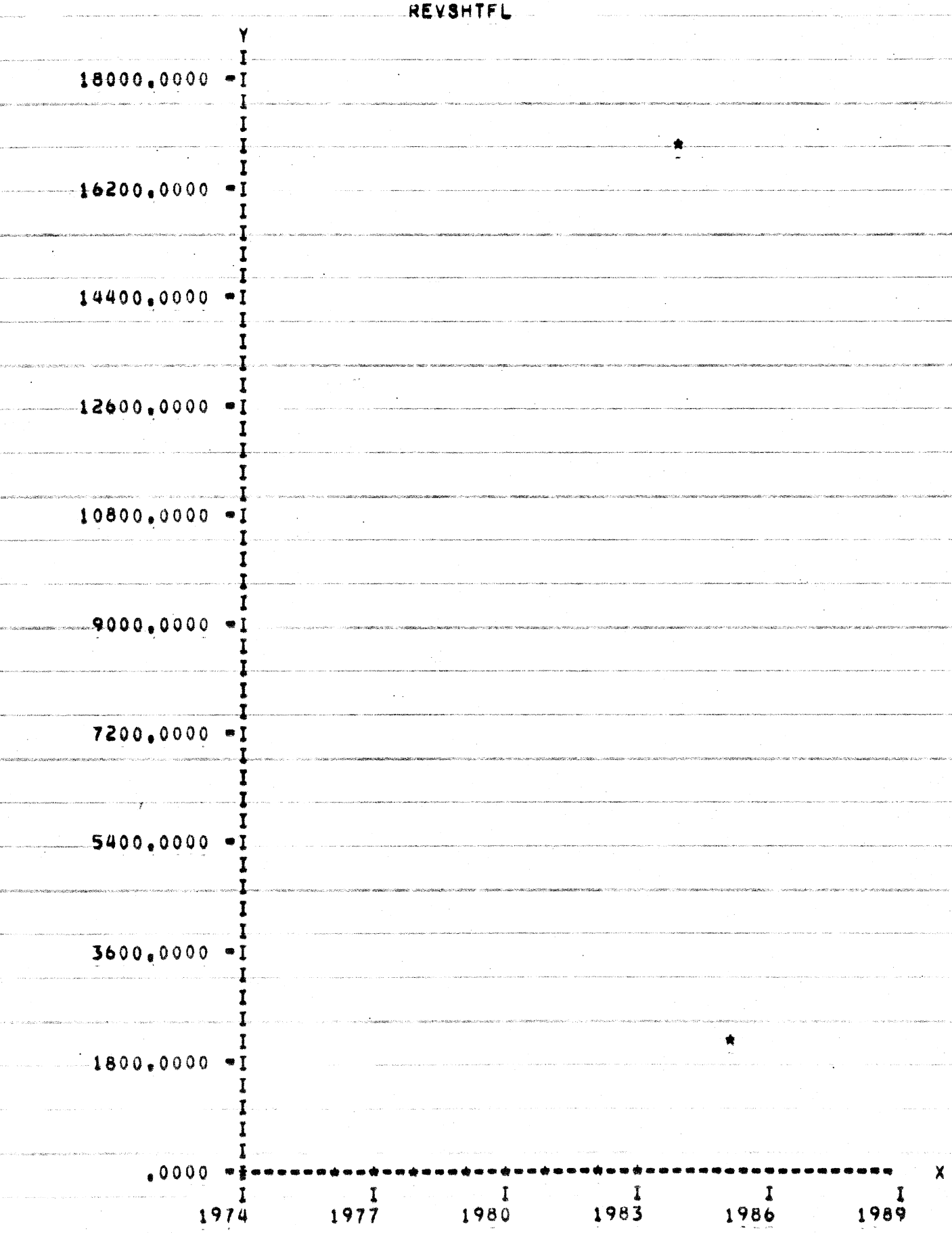
```
*CALL ILREP

*XQT CPM*PMOD,MODEL
ILREP 1.3   09 MAR 76 10:56:12
MODEL BEING INITIALIZED
      INTEGRATED LONG RANGE ECONOMIC PLANS
:
MODEL BEING RESTORED
RESTORING MODEL KSEL775H      DURING   1974-  1985 INDEP REV    -CON
BUDGET   1975 FINANCING EPC2   CREATED 29 OCT 75 10:58:09
MODELS BEING RESTORED
RESTORING MODEL KSEL          DURING   1974-  1983 INDEP REV    -CON
BUDGET   1974 FINANCING NORM   CREATED 14 MAR 75 15:06:22
03/09/76
```

TIME	IOTREV	TOTREV $
1976	32441.42600	32441.42600
1977	36763.17500	36763.17500
1978	40738.38900	40738.38900
1979	44603.90400	44603.90400
1980	48776.97800	48776.97800
1981	53639.29700	53639.29700
' '2	59114.15900	59114.15900
' '3	65114.78300	65114.78300
1984	71446.49600	54555.00000
1985	78496.16100	58340.00000

03/09/76

TIME	REVSHTFL *	REVPCTSHTFL *
1976	.00024	.00000
1977	.00049	.00000
1978	.00049	.00000
1979	.00049	.00000
1980	.00049	.00000
1981	.00049	.00000
1982	.00049	.00000
1983	.00049	.00000
1984	16891.49700	30.96232
1985	2092.74120	2.73907


REVSHTFL
Y
18000.0000
16200.0000
14400.0000
12600.0000
10800.0000
9000.0000
7200.0000
5400.0000
3600.0000
1800.0000
.0000
X
1974
1977
1980
1983
1986
1989

03/09/76

REVSHTFL

* REVSHTFL

03/09/76

REVSHTFL

YEARS	REVSHTFL
1976	.00024
1977	.00049
1978	.00049
1979	.00049
1980	.00049
1981	.00049
1982	.00049
1983	.00049
1984	16891.49700
1985	2092.74120

E! ILREP
DA,A IGNORED - IN CONTROL MODE

@FREE CORE*75PROJ2.

@FREE CORE*75PROJ1.
FAC WARNING 100000000000

```
DEFINE MODTEST:DURING 1974-1974:INDEP REV,CON:
YES
INPUT RTE:
3000.0
INPUT CMNDIV:
0.
INPUT ATTCEQAVG:
28196.0
INPUT INCBDEITR:
5300.
INPUT TOTCAPAVG:
62111.1145
INPUT CPI:
1.444
COMPUTE ADJEPS=ADJUST(EPS,CPI):
PRINT EPS,CPI,ADJEPS:
COMPUTE ADJRORATC=ADJUST(RORATC,CPI):
PRINT ADJRORATC,INCBDEITR,TOTCAPAVG:
COMPUTE NUMRORATC=ADJUST(INCBDEITR,CPI):
COMPUTE DENRORATC=ADJUST(TOTCAPAVG,CPI):
COMPUTE ADJRORATC2=RATIO(NUMRORATC,DENRORATC):
PRINT NUMRORATC,INCBDEITR:
PRINT DENRORATC,TOTCAPAVG:
PRINT ADJRORATC,ADJRORATC2,NUMRORATC,DENRORATC:
COMPUTE ADJRORCEQATT=ADJUST(RORCEQAVGATT,CPI):
PRINT ADJRORCEQATT,RTE,CMNDIV,ATTCEQAVG:
COMPUTE NUMRORCEQATT=SUM(RTE,CMNDIV):
COMPUTE NUMRORCEQATT=RATIO(NUMRORCEQATT,CPI):
YES
COMPUTE DENRORCEQATT=ADJUST(ATTCEQAVG,CPI):
COMPUTE badjrorceqat=RATIO(NUMRORCEQATT,DENRORCEQATT):
PRINT ADJRORCEQATT,badjrorceqat,NUMRORCEQATT,DENRORCEQATT:
STOP:
NO
```

```
@CALL ILREP

@XQT CPM*PMOD,MODEL
ILREP 1.3    09 MAR 76 11:04:24
MODEL BEING INITIALIZED
      INTEGRATED LONG RANGE ECONOMIC PLANS
:
SM: ILLEGAL STATEMENT
03/09/76

 TIME              EPS              CPI            ADJEPS
                                                        *
 1974           5.26710          1.44400           3.64758
03/09/76

 TIME          ADJRORATC        INCBDEITR        TOTCAPAVG
                       *
 1974             .05704       5300.00000      62111.11400
03/09/76

 TIME          NUMRORATC        INCBDEITR
                       *
 1974         3670.36000       5300.00000
03/09/76

 TIME          DENRORATC        TOTCAPAVG
                       *
 1974        64349.10900      62111.11400
03/09/76

 TIME          ADJRORATC       ADJRORATC2        NUMRORATC        DENRORATC
                       *                *                *                *
 1974             .05704           .05704       3670.36000      64349.10900
03/09/76

    E       ADJRORCEQATT              RTE            CMNDIV        ATTCEQAVG
                       *
 1974             .06569       3000.00000            .00000      28196.00000
```

```
SM: COMPUTED VARIABLE NAME IS NOT UNIQUE
SM: DO YOU WISH TO OVERWRITE THE VARIABLE
O. 9/76
```

TIME	ADJRORCEQATT *	BADJRORCEQAT *	NUMRORCEQATT *	DENRORCEQATT *
1974	.06569	.06569	2077.56230	31628.25300

```
END ILREP

@FREE CORE*75PROJ2.
FAC WARNING        100000000000

@FREE CORE*75PROJ1.
FAC WARNING        100000000000
```

NOTE: Replace > with @ in actual terminal session.

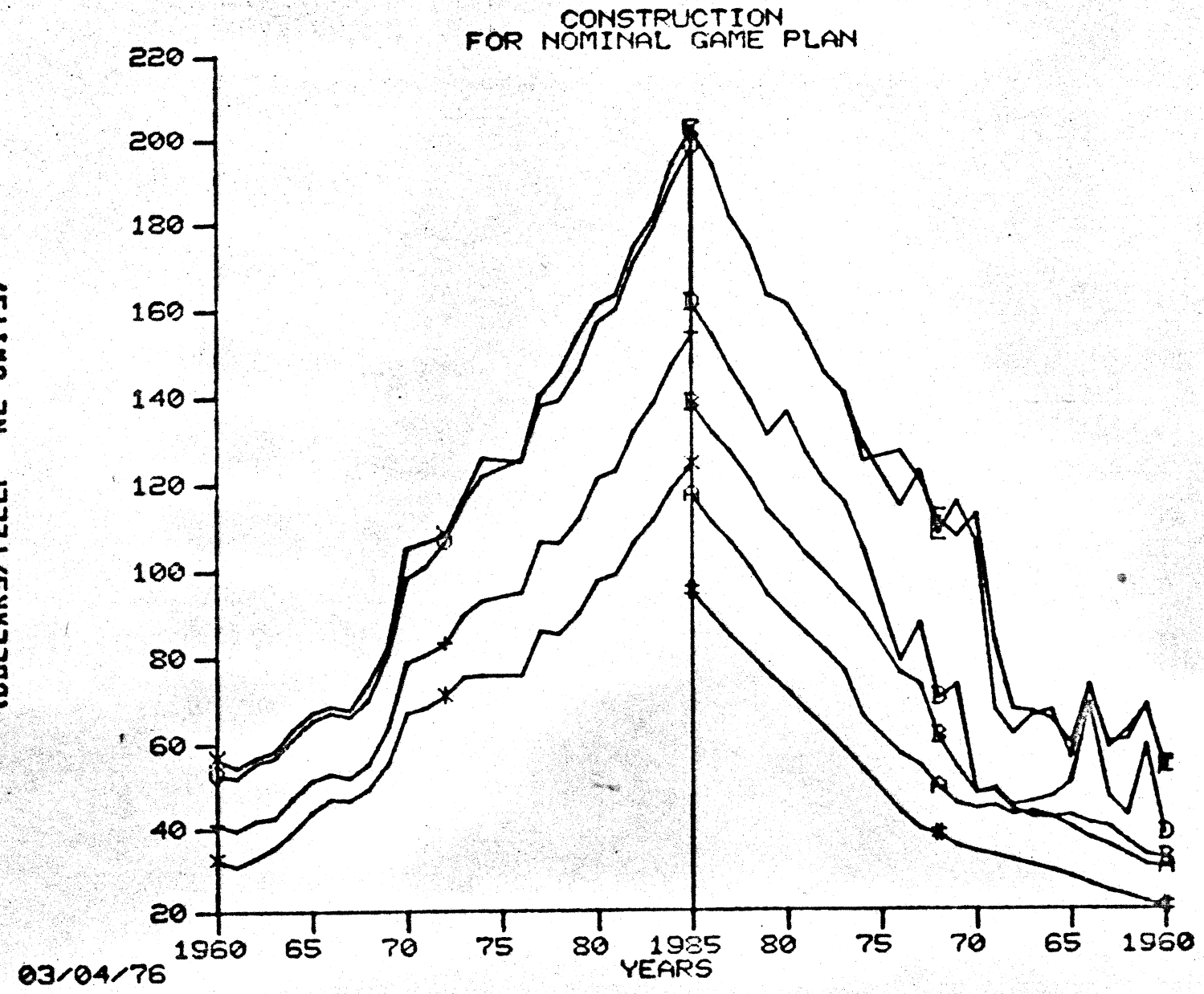
```
RESTORE 75PROJ2:
COMPUTE THOUSAND=CONSTANT(1000.):WITH HISTORICAL:
INPUT DUMVAR:WITH HISTORICAL:
>ADD MDG*75EPC2.TOTTELLRE/HIST
>ADD MDG*75EPC2.TOTTELLRE
COMPUTE TOTTELLRE=SERIES(DUMVAR):WITH HISTORICAL:
COMPUTE TOTTELLRE=RATIO(TOTTELLRE,THOUSAND):WITH HISTORICAL:
YES
INPUT DUMVAR:WITH HISTORICAL:
>add cpm*eskdata775.grocon/6074
>add cpm*eskdata775.missdata/7585
COMPUTE GROCON=SERIES(DUMVAR):WITH HISTORICAL:
COMPUTE GROCON=PROD(GROCOND75,totconidx):DURING 1975-1985:
YES
INPUT DUMVAR:WITH HISTORICAL:
>add cpm*eskdata775.modcon/6074
>add cpm*eskdata775.missdata/7585
COMPUTE MODCON=SERIES(DUMVAR):WITH HISTORICAL:
COMPUTE MODCON=PROD(MODCOND75,totconidx):DURING 1975-1985:
YES
INPUT DUMVAR:WITH HISTORICAL:
>add cpm*eskdata775.plrcmvcon/6074
>ADD CPM*ESKDATA775.ZEROS/7585
COMPUTE PLRCMVCON=SERIES(DUMVAR):WITH HISTORICAL:
COMPUTE TEMP=PROD(CMVCOND75,totconidx):DURING 1975-1985:
COMPUTE PLRCMVCON=SUM(PLRCMVCON,TEMP):DURING 1975-1985:
YES
COMPUTE TEMP=PROD(PLRCOND75,totconidx):DURING 1975-1985:
COMPUTE PLRCMVCON=SUM(PLRCMVCON,TEMP):DURING 1975-1985:
YES
INPUT DUMVAR:WITH HISTORICAL:
>ADD CPM*ESKDATA775.OTHREQ/6074
>ADD CPM*ESKDATA775.MISSDATA/7585
COMPUTE OTHREQ=RATIO(DUMVAR,THOUSAND):WITH HISTORICAL:
COMPUTE OTHREQ=SERIES(TOTOTHREQ):DURING 1975-1985:
YES
INPUT DUMVAR:WITH HISTORICAL:
>ADD CPM*ESKDATA775.NETSALVAGE/6074
>ADD CPM*ESKDATA775.MISSDATA/7585
COMPUTE DEPRECIATION=RATIO(DUMVAR,THOUSAND):WITH HISTORICAL:
INPUT DUMVAR:WITH HISTORICAL:
>ADD CPM*ESKDATA775.DEPACCRUALS/6074
>ADD CPM*ESKDATA775.MISSDATA/7585
COMPUTE TEMP=RATIO(DUMVAR,THOUSAND):WITH HISTORICAL:
COMPUTE DEPRECIATION=SUM(DEPRECIATION,TEMP):WITH HISTORICAL:
YES
COMPUTE DEPRECIATION=SERIES(TOTDEP):DURING 1975-1985:
```

```
YES
INPUT DUMVAR:WITH HISTORICAL:
>ADD CPM*ESKDATA775.RTE/6074
>ADD CPM*ESKDATA775.MISSDATA/7585
COMPUTE RETEARN=RATIO(DUMVAR,THOUSAND):WITH HISTORICAL:
COMPUTE RETEARN=SERIES(RTE):DURING 1975-1985:
YES
INPUT DUMVAR:WITH HISTORICAL:
>ADD CPM*ESKDATA775.TAXDEF/6074
>ADD CPM*ESKDATA775.MISSDATA/7585
COMPUTE NETRESOURCES=RATIO(DUMVAR,THOUSAND):WITH HISTORICAL:
INPUT DUMVAR:WITH HISTORICAL:
>ADD CPM*ESKDATA775.ITC/6074
>ADD CPM*ESKDATA775.MISSDATA/7585
COMPUTE TEMP=RATIO(DUMVAR,THOUSAND):WITH HISTORICAL:
COMPUTE NETRESOURCES=SUM(NETRESOURCES,TEMP):WITH HISTORICAL:
YES
INPUT DUMVAR:WITH HISTORICAL:
>ADD CPM*ESKDATA775.OTHRESNET/6074
>ADD CPM*ESKDATA775.MISSDATA/7585
COMPUTE TEMP=RATIO(DUMVAR,THOUSAND):WITH HISTORICAL:
COMPUTE NETRESOURCES=SUM(NETRESOURCES,TEMP):WITH HISTORICAL:
YES
INPUT DUMVAR:WITH HISTORICAL:
>ADD CPM*ESKDATA775.TAXDEF2/6074
>ADD CPM*ESKDATA775.MISSDATA/7585
COMPUTE TEMP=RATIO(DUMVAR,THOUSAND):WITH HISTORICAL:
COMPUTE NETRESOURCES=SUM(NETRESOURCES,TEMP):WITH HISTORICAL:
YES
COMPUTE NETRESOURCES=SERIES(NETOTHRES):DURING 1975-1985:
YES
INPUT DUMVAR:WITH HISTORICAL:
>ADD CPM*ESKDATA775.PRFSTOCK/6074
>ADD CPM*ESKDATA775.MISSDATA/7585
COMPUTE PRFCMNSTOCK=RATIO(DUMVAR,THOUSAND):WITH HISTORICAL:
INPUT DUMVAR:WITH HISTORICAL:
>ADD CPM*ESKDATA775.PRFSTOCK2/6074
>ADD CPM*ESKDATA775.MISSDATA/7585
COMPUTE TEMP=RATIO(DUMVAR,THOUSAND):WITH HISTORICAL:
COMPUTE PRFCMNSTOCK=SUM(PRFCMNSTOCK,TEMP):WITH HISTORICAL:
YES
INPUT DUMVAR:WITH HISTORICAL:
>ADD CPM*ESKDATA775.CMNSTOCK/6074
>ADD CPM*ESKDATA775.MISSDATA/7585
COMPUTE TEMP=RATIO(DUMVAR,THOUSAND):WITH HISTORICAL:
COMPUTE PRFCMNSTOCK=SUM(PRFCMNSTOCK,TEMP):WITH HISTORICAL:
YES
INPUT DUMVAR:WITH HISTORICAL:
>ADD CPM*ESKDATA775.CMNSTOCK2/6074
>ADD CPM*ESKDATA775.MISSDATA/7585
```

```
COMPUTE TEMP=RATIO(DUMVAR,THOUSAND):WITH HISTORICAL:
COMPUTE PRFCMNSTOCK=SUM(PRFCMNSTOCK,TEMP):WITH HISTORICAL:
YES
COMPUTE PRFCMNSTOCK=SUM(PRFEQTSLD,CEQSLD):DURING 1975-1985:
YES
INPUT DUMVAR:WITH HISTORICAL:
>ADD CPM*ESKDATA775.DBTLTM/6074
>ADD CPM*ESKDATA775.MISSDATA/7585
COMPUTE DBTLTM=SERIES(DUMVAR):WITH HISTORICAL:
INPUT DUMVAR:WITH HISTORICAL:
>ADD CPM*ESKDATA775.DBTLTM2/6074
>ADD CPM*ESKDATA775.MISSDATA/7585
COMPUTE DBTLTM=SUM(DUMVAR,DBTLTM):WITH HISTORICAL:
YES
COMPUTE DBTLTM=RATIO(DBTLTM,THOUSAND):WITH HISTORICAL:
YES
COMPUTE DBTLTM=SERIES(LTMDBTSLD):DURING 1975-1985:
YES
INPUT DUMVAR:WITH HISTORICAL:
>ADD CPM*ESKDATA775.DBTSTM/6074
>ADD CPM*ESKDATA775.MISSDATA/7585
COMPUTE DBTSTM=RATIO(DUMVAR,THOUSAND):WITH HISTORICAL:
COMPUTE DBTSTM=SERIES(NETDBTSTMCHG):DURING 1975-1985:
YES
COMPUTE MODCON=SUM(MODCON,GROCON):WITH HISTORICAL:
YES
COMPUTE PLRCMVCON=SUM(PLRCMVCON,MODCON):WITH HISTORICAL:
YES
COMPUTE OTHREQ=SUM(OTHREQ,PLRCMVCON):WITH HISTORICAL:
YES
COMPUTE RETEARN=SUM(RETEARN,DEPRECIATION):WITH HISTORICAL:
YES
COMPUTE NETRESOURCES=SUM(NETRESOURCES,RETEARN):WITH HISTORICAL:
YES
COMPUTE PRFCMNSTOCK=SUM(NETRESOURCES,PRFCMNSTOCK):WITH HISTORICAL:
YES
COMPUTE DBTLTM=SUM(DBTLTM,PRFCMNSTOCK):WITH HISTORICAL:
YES
COMPUTE DBTSTM=SUM(DBTLTM,DBTSTM):WITH HISTORICAL:
YES
COMPUTE GROCON=RATIO(GROCON,TOTTELLRE):WITH HISTORICAL:
YES
COMPUTE MODCON=RATIO(MODCON,TOTTELLRE):WITH HISTORICAL:
YES
COMPUTE PLRCMVCON=RATIO(PLRCMVCON,TOTTELLRE):WITH HISTORICAL:
YES
COMPUTE OTHREQ=RATIO(OTHREQ,TOTTELLRE):WITH HISTORICAL:
YES
COMPUTE DEPRECIATION=RATIO(DEPRECIATION,TOTTELLRE):WITH HISTORICAL:
YES
```

```
COMPUTE RETEARN=RATIO(RETEARN,TOTTELLRE):WITH HISTORICAL:
YES
COMPUTE NETRESOURCES=RATIO(NETRESOURCES,TOTTELLRE):WITH HISTORICAL:
YES
COMPUTE PRFCMNSTOCK=RATIO(PRFCMNSTOCK,TOTTELLRE):WITH HISTORICAL:
YES
COMPUTE DBTLTM=RATIO(DBTLTM,TOTTELLRE):WITH HISTORICAL:
YES
COMPUTE DBTSTM=RATIO(DBTSTM,TOTTELLRE):WITH HISTORICAL:
YES
INPUT DUMVAR:WITH HISTORICAL:
>ADD CPM*TESTSTM.INDEX1
COMPUTE temp=SERIES(DUMVAR):WITH HISTORICAL:
INPUT DUMVAR:WITH HISTORICAL:
>ADD CPM*TESTSTM.INDEX2
compute grocon=constant(-99999.):during 1975-1975:
yes
compute modcon=constant(-99999.):during 1975-1975:
yes
compute plrcmvcon=constant(-99999.):during 1975-1975:
yes
compute othreq=constant(-99999.):during 1975-1975:
yes
compute depreciation=constant(-99999.):during 1975-1975:
yes
compute retearn=constant(-99999.):during 1975-1975:
yes
compute netresources=constant(-99999.):during 1975-1975:
yes
compute prfcmnstock=constant(-99999.):during 1975-1975:
yes
compute dbtltm=constant(-99999.):during 1975-1975:
yes
compute dbtstm=constant(-99999.):during 1975-1975:
yes
PLOT GROCON,MODCON,PLRCMVCON,OTHREQ .VS. temp .and.#
DEPRECIATION,RETEARN,NETRESOURCES,PRFCMNSTOCK,DBTLTM,DBTSTM .vs.#
dumvar:#
YLAB=(DOLLARS/TELEPHONE UNITS):XLAB=YEARS:WITH HISTORICAL:#
SUBT=FOR nominal game plan:Ctpt=26.:ctln=yes:#
xmin=1.:xmax=51.:xdiv=10.:#
XTXT=1960,65,70,75,80,1985,80,75,70,65,1960:#
xval=no:#
xcen=yes:#
main=construction:#
yint=yes:cint=11.,11.,11.,11.,11.,11.,11.,11.,11.,11.:xint=yes:#
CHAR=YES:#
dashes=no:#
LEGN=GROWTH,MODERNZATION,PLANT REPL +,OTHER,DEPRECIATION,RET EARN,#
NET OTHER,PRF + CMN,LONG TERM,SHORT TERM,TEL LESS RES:#
```

```
SUBLEGN=BLANK,BLANK,MOVEMENT,REQUIREMENTS,BLANK,BLANK,RESOURCES,#
STOCK,DEBT,DEBT,BLANK:#
page legn=yes:
stop:
no
```


CONSTRUCTION
FOR NOMINAL GAME PLAN
(DOLLARS/TELEF NE UNITS)
220
200
180
160
140
120
100
80
60
40
20
1960
65
70
75
80
1985
80
75
70
65
1960
YEARS
03/04/76

03/04/76

CONSTRUCTION
FOR NOMINAL GAME PLAN
(DOLLARS/TELEPHONE UNITS)

*	GROWTH
+	MODERNZATION
O	PLANT REPL + MOVEMENT
X	OTHER REQUIPEMENTS
#	DEPRECIATION
A	RET EARN
B	NET OTHER RESOURCES
D	PRF + CMN STOCK
E	LONG TERM DEBT
F	SHORT TERM DEBT

03/04/76

CONSTRUCTION
FOR NOMINAL GAME PLAN
(DOLLARS/TELEPHONE UNITS)

YEARS	GROWTH	MODERNZATION	PLANT REPL + MOVEMENT	OTHER REQUIREMENTS
1960	32.12470	40.55150	52.57848	56.22568
1961	30.65293	39.32800	51.82224	54.15074
1962	32.85914	41.84100	55.34170	56.61121
1963	35.07663	42.40608	56.61365	58.19083
1964	38.92242	46.99212	61.20106	63.32838
1965	43.67854	51.12242	65.39264	67.10291
1966	46.93499	52.66139	67.07512	68.46217
1967	46.57496	51.82176	66.31585	67.70659
1968	49.25104	55.14521	70.05052	74.02641
1 9	55.52253	63.88700	80.94146	82.34658
19?0	67.12182	78.76121	92.14647	104.84304
1971	68.35859	80.46513	100.82146	106.50581
1972	70.82782	82.88499	106.34446	108.01231
1973	75.32828	89.72435	115.59017	116.93713
1974	75.81563	92.90800	121.77403	125.75249
1975	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE
1976	75.62196	94.81459	125.41907	124.93376
1977	85.74353	106.44650	137.85120	140.23411
1978	85.27539	106.10948	138.92520	145.16669
1979	90.03604	111.95093	146.05277	154.34216
1980	97.54332	121.05628	156.80306	161.10926
1981	98.88627	122.85367	159.80110	163.05049
1982	106.54021	132.16540	170.86867	174.44535
1983	111.87061	138.71614	178.95593	181.23357
1984	118.91391	147.32966	189.42385	194.19753
1985	124.12262	153.77997	197.66634	201.92484

3/04/76

CONSTRUCTION
FOR NOMINAL GAME PLAN
(DOLLARS/TELEPHONE UNITS)

YEARS	DEPRECIATION	RET EARN	NET OTHER RESOURCES	PRF + CMN STOCK
1960	20.21548	29.89828	31.88369	37.87421
1961	21.56968	30.48683	32.80078	58.72061
1962	22.87840	32.65363	36.16504	42.33010
1963	24.16072	35.00599	39.64420	46.87733
1964	25.97544	37.01061	40.47632	68.67439
1965	27.60262	39.55849	42.36230	50.08053
1966	29.19905	41.98272	41.80772	46.73855
1967	30.32812	43.15536	42.02419	45.49106
1968	31.70034	42.62766	43.89234	44.64509
1969	32.76111	44.83370	48.33002	48.74407
1970	33.76758	44.20475	47.63633	47.65815
1971	35.27191	45.44241	54.07285	72.96239
1972	37.70213	49.29939	61.19810	70.06840
1973	39.45438	54.53703	73.43770	87.34492
1974	43.57595	57.23852	76.00234	78.67054
1975	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE
1976	53.75484	65.95638	89.36745	104.98565
1977	58.42282	76.74029	94.31749	115.64642
1978	63.09000	81.46774	99.30824	120.14435
1979	67.48237	85.23922	103.61225	127.14503
1980	71.91998	89.52053	108.84332	136.40434
1981	76.17735	94.16477	113.71288	131.02912
1982	80.40654	100.84541	120.98833	139.27709
1983	84.82205	106.34644	127.20286	146.03854
1984	89.53416	110.88000	131.87689	154.10302
1985	94.69151	117.07943	138.05832	161.07932

03/04/76

CONSTRUCTION
FOR NOMINAL GAME PLAN
(DOLLARS/TELEPHONE UNITS)

YEARS	LONG TERM DEBT	SHORT TERM DEBT
1960	54.03547	52.98706
1961	58.04323	58.04323
1962	60.08928	62.24642
1963	59.51400	58.32251
1964	72.67436	72.84827
1965	56.03902	59.22687
1966	67.04895	65.04933
1967	65.87813	66.73983
1968	61.73103	67.27531
1969	67.35527	83.25068
1970	105.77729	112.44431
1971	115.44706	107.30212
1972	107.91463	111.30941
1973	122.14004	120.35886
1974	114.40253	126.91603
1975	NOT AVAILABLE	NOT AVAILABLE
1976	128.94324	124.93378
1977	140.41160	140.41160
1978	145.17235	145.17235
1979	154.34112	154.34112
1980	161.10982	161.10982
1981	163.05080	163.05080
1982	174.44509	174.44509
1983	181.24175	181.24175
1984	194.19434	194.19434
1985	201.93139	201.93139

```
@CALL ILREP

@XQT CPM*PMOD,MODEL
ILREP 1.3   09 MAR 76 11:05:42
MODEL BEING INITIALIZED
      INTEGRATED LONG RANGE ECONOMIC PLANS
MODEL BEING RESTORED
RESTORING MODEL KSEL775H      DURING   1974=  1985 INDEP REV    =CON
BUDGET   1975 FINANCING EPC2   CREATED 29 OCT 75 10:58:09
SM: COMPUTED VARIABLE NAME IS NOT UNIQUE
SM: DO YOU WISH TO OVERWRITE THE VARIABLE
SM: COMPUTED VARIABLE NAME IS NOT UNIQUE
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SM: COMPUTED VARIABLE NAME IS NOT UNIQUE
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SM: DO YOU WISH TO OVERWRITE THE VARIABLE
S COMPUTED VARIABLE NAME IS NOT UNIQUE
S.. DO YOU WISH TO OVERWRITE THE VARIABLE
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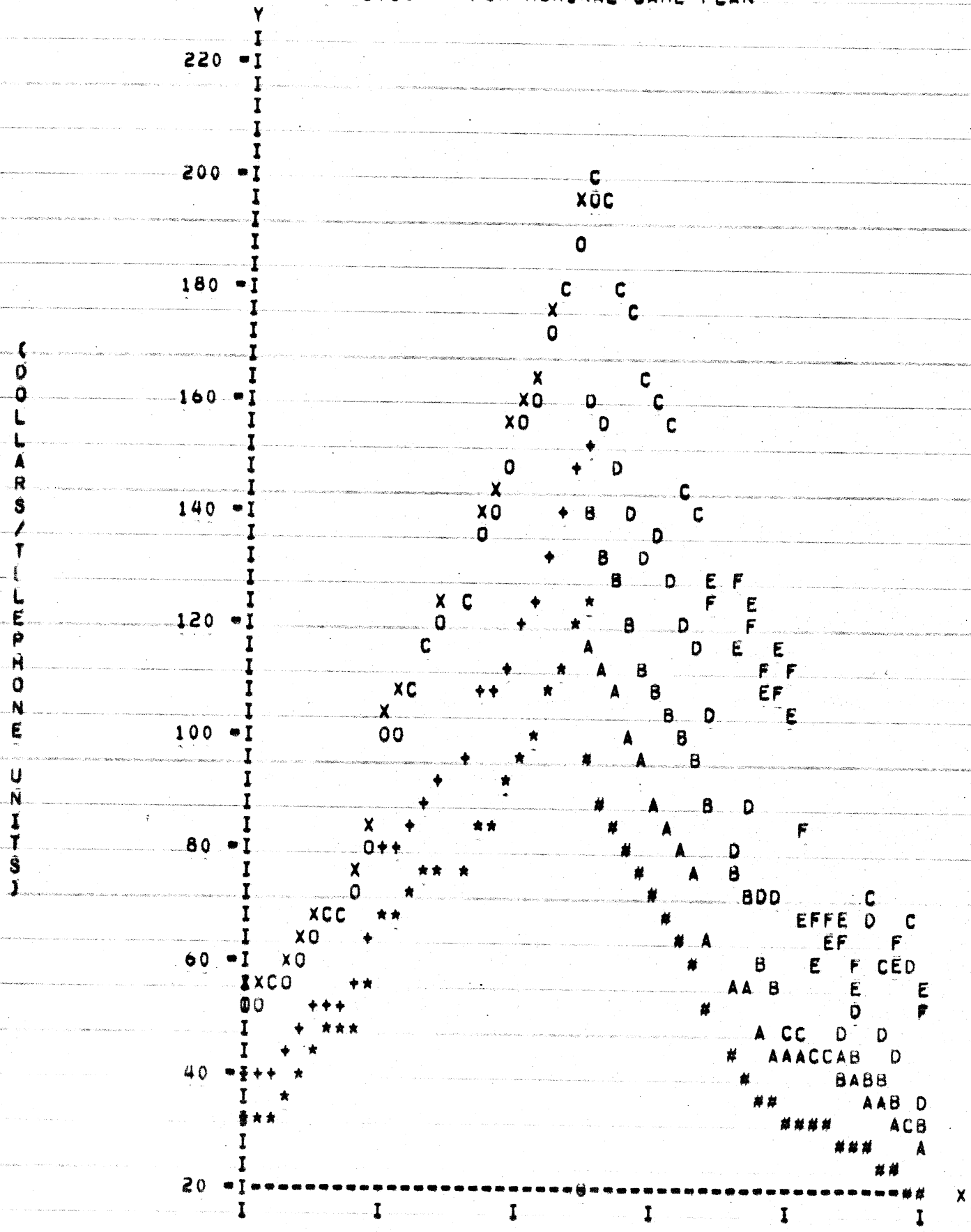
SM: DO YOU WISH TO OVERWRITE THE VARIABLE

CONSTRUCTION = FOR NOMINAL GAME PLAN



LEGEND

	GROWTH
+	MODERNZATION
0	PLANT REPL +
X	OTHER
#	DEPRECIATION
A	RET EARN
B	NET OTHER
D	PRF + CMN
E	LONG TERM
F	SHORT TERM

03/09/76

CONSTRUCTION = FOR NOMINAL GAME PLAN

(DOLLARS/TELEPHONE UNITS)

*	GROWTH
+	MODERNZATION
0	PLANT REPL + MOVEMENT
X	OTHER REQUIREMENTS
#	DEPRECIATION
A	RET EARN
B	NET OTHER RESOURCES
D	PRF + CMN STOCK
E	LONG TERM DEBT
F	SHORT TERM DEBT

1	1960
2	65
3	70
4	75
5	80
6	1985
7	80
8	75
9	70

10 65
11 1960

03/09/76

CONSTRUCTION
FOR NOMINAL GAME PLAN
(DOLLARS/TELEPHONE UNITS)

YEARS	GROWTH	MODERNZATION	PLANT REPL + MOVEMENT	OTHER REQUIREMENTS
1960	32.12470	40.55150	52.57848	56.22568
1961	30.65893	39.32800	51.82224	54.15074
1962	32.85914	41.84100	55.34170	56.61121
1963	35.07663	42.40608	56.61365	58.19080
1964	38.92242	46.99212	61.20106	63.32888
1965	43.67854	51.12242	65.39264	67.10291
1966	46.93499	52.66189	67.07512	68.46217
1967	46.57496	51.82176	66.31585	67.70659
1968	49.25104	55.14521	70.05052	74.02641
1969	55.52253	63.88700	80.94146	82.34658
1970	67.12182	78.76121	98.14647	104.84304
1971	68.35669	80.46513	100.88146	106.50583
1972	70.82782	82.88499	106.34446	108.01281
1973	75.32828	89.72435	115.59017	116.93712
1974	75.81563	92.90800	121.77403	125.75849
1975	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE
1976	75.62196	94.81459	125.41907	124.93370
1 7	85.74353	106.44650	137.85120	140.28411
1978	85.27539	106.10948	138.92520	145.16669
1979	90.03604	111.95093	146.05877	154.34216
1980	97.54332	121.05628	156.80306	161.10920
1981	98.88627	122.85367	159.80110	163.05049
1982	106.54021	132.16540	170.86267	174.44505
1983	111.87061	138.71614	178.95593	181.23857
1984	118.91391	147.32966	189.42385	194.19796
1985	124.12262	153.77997	197.66634	201.92484

03/09/76

CONSTRUCTION
FOR NOMINAL GAME PLAN
(DOLLARS/TELEPHONE UNITS)

YEARS	DEPRECIATION	RET EARN	NET OTHER RESOURCES	PRF + CMN STOCK
1960	20.21548	29.89828	31.88869	37.87421
1961	21.56968	30.48683	32.80078	38.72061
1962	22.87840	32.65363	36.16504	42.33010
1963	24.16072	35.00599	39.64420	46.87702
1964	25.97544	37.01061	40.47632	48.67429
1965	27.60262	39.55849	42.36230	50.08058
1966	29.19905	41.98872	41.80772	46.73285
1967	30.32818	43.15536	42.02419	45.49106
1	31.70034	42.62766	43.89234	44.64509
1	32.76111	44.83370	48.38002	48.74407
1970	33.76758	44.20475	47.63633	47.65815
1971	35.27191	45.44241	54.07285	72.96809
1972	37.70213	49.29939	61.19810	70.06840

1973	39.45438	54.53703	73.43770	87.34498
1974	43.57595	57.23852	76.00884	78.67054
'5	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE
1976	53.75484	65.95638	89.36745	104.92565
1977	58.42282	76.74089	94.31749	115.64948
1978	63.09000	81.46774	99.30824	120.14485
1979	67.48237	85.23922	103.61225	127.14503
1980	71.91998	89.52058	108.84832	136.40434
1981	76.17735	94.16477	113.71288	131.02912
1982	80.40654	100.84541	120.98833	139.27709
1983	84.82205	106.34644	127.20286	146.03354
1984	89.53416	110.86000	131.87689	154.10992
1985	94.69151	117.07943	138.05832	161.07932

03/09/76

CONSTRUCTION
FOR NOMINAL GAME PLAN
(DOLLARS/TELEPHONE UNITS)

YEARS	LONG TERM DEBT	SHORT TERM DEBT
1960	54.03547	52.98706
1961	68.04323	68.04323
1962	60.08928	62.24642
1963	59.51400	58.32251
1964	72.67436	72.84827
1965	56.03902	59.22687
1966	67.04895	65.04933
1967	65.87818	66.73983
1968	61.78103	67.27531
1969	67.35537	83.25068
1970	105.77729	112.44431
1971	115.44706	107.30212
1972	107.91463	111.30941
1973	122.14004	120.35886
1974	114.40253	126.91608
1975	NOT AVAILABLE	NOT AVAILABLE
1976	128.94324	124.93878
1977	140.41160	140.41160
1978	145.17235	145.17235
1979	154.34112	154.34112
1980	161.10982	161.10982
1981	163.05080	163.05080
1982	174.44509	174.44509
1983	181.24175	181.24175
1984	194.19434	194.19434
1985	201.93139	201.93139

MI ILLEGAL STATEMENT

FREE CORE*75PROJ2.

FREE CORE*75PROJ1.
AC WARNING 100000000000

```
DEFINE il75proj2:FROM CPM*if75proj2:BUDGET=75EPC2:FINANCE=EPC2:#
DURING 1974-1980:INDEP REV,CON:
yes
_rint totrev,eps,totcon,rorceqavgatt:during 1976-1980:
SAVE:
STOP:
```

```
*CALL ILREP

*XQT CPM*PMOD,MODEL
ILREP 1.3    09 MAR 76 11:06:42
MODEL BEING INITIALIZED
      INTEGRATED LONG RANGE ECONOMIC PLANS
:
SM:SYSTEM RESET START YEAR TO 1976
CKCR: MODEL NAME NOT UNIQUE
SM: DO YOU WISH TO OVERWRITE MODEL
EXTERNAL MODEL BEING RESTORED
03/09/76
```

TIME	IF OUTPUT IOTREV	IF OUTPUT EPS	IF OUTPUT TOTCON	IF OUTPUT RORCEQAVGATT
1976	32441.69500	5.21316	10977.55300	.09576
1977	36763.08300	6.08043	12477.19900	.10723
1978	40737.95500	5.97718	12965.47000	.10074
1979	44604.43300	5.89138	14062.09900	.09522
1980	48777.14600	5.80938	15566.93700	.09032

```
END ILREP

  REE CORE*75PROJ2,
FAC WARNING        100000000000

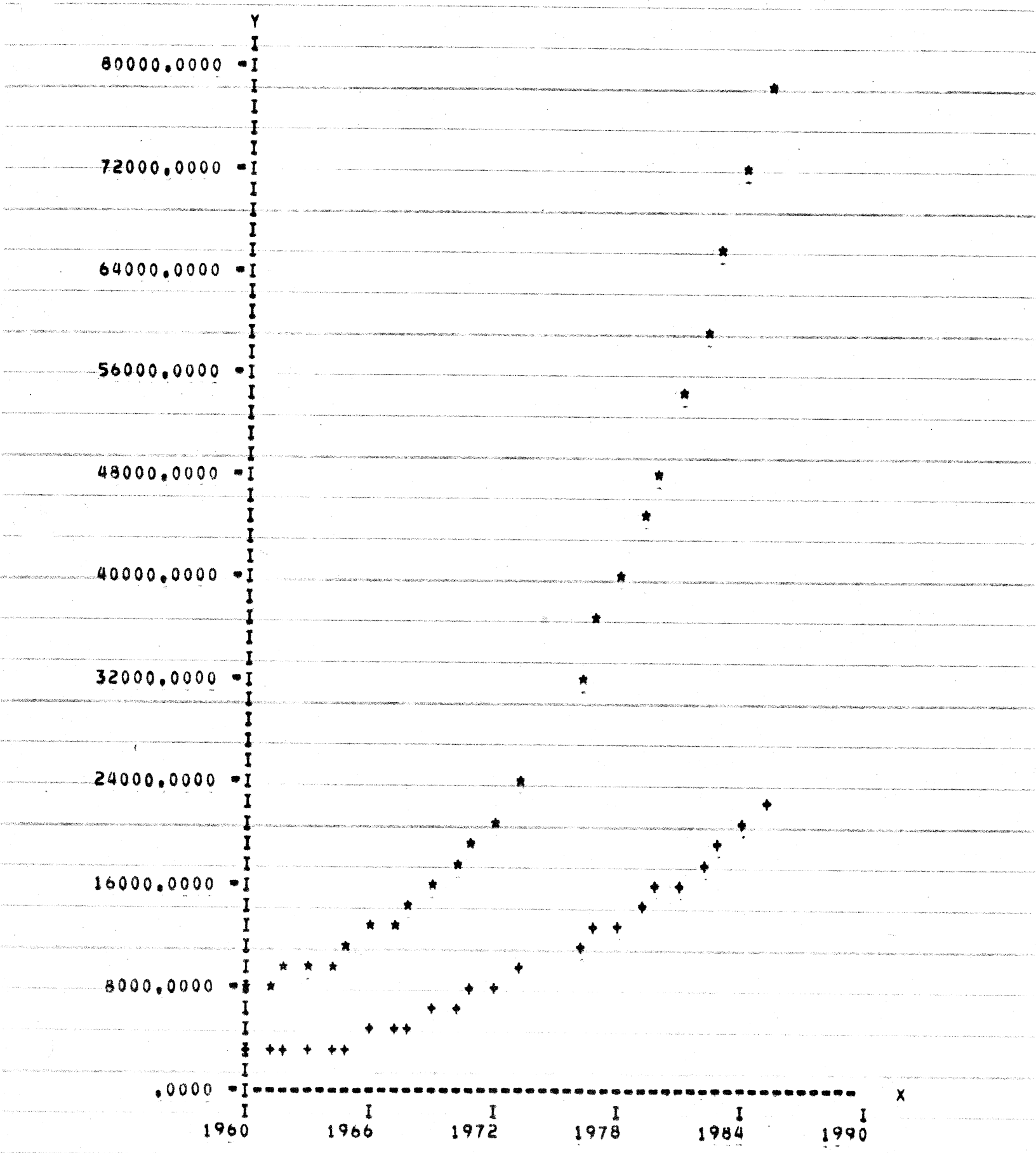
*FREE CORE*75PROJ1,
FAC WARNING        100000000000
```

```
DEFINE MODTEST:BUDGET=75EPC2:DURING 1976-1985:INDEP REV,CON:
YES
PRINT TOTREV,TOTCON,TOTEXPLDP:WITH HIST:
PLOT TOTREV,TOTCON:WITH HIST:
STOP:
NO
```

```
*CALL ILREP

*XQT CPM*PMOD,MODEL
ILREP 1.3    09 MAR 76 11:07:16
MODEL BEING INITIALIZED
      INTEGRATED LONG RANGE ECONOMIC PLANS
!
SM: ILLEGAL STATEMENT
03/09/76
```

TIME	TOTREV	TOTCON	TOTEXPLDP
1960	7920.45390	2658.38100	3747.18790
1961	8414.42600	2696.02600	3913.87600
1962	8980.20800	2975.98000	4086.77800
1963	9568.96100	3135.85400	4282.40690
1964	10305.99300	3518.89600	4662.68100
1965	11061.78200	3917.64400	5048.96600
1966	12138.26500	4192.56400	5487.99100
1967	13009.20300	4309.62000	5871.55490
1968	14100.01400	4742.14390	6310.30100
1969	15683.76600	5677.51090	7299.41600
1970	16954.88100	7159.17990	8339.96890
1971	18510.76400	7564.10690	9314.76400
1972	20887.57100	8305.66600	10488.04100
1973	23510.04100	9321.82890	11682.56200
1976	32441.69500	10977.55300	17271.60000
1977	36763.08300	12477.19900	19626.50000
1978	40737.95500	12965.47000	22326.50000
1979	44604.43300	14062.09900	24910.80000
1980	48777.14600	15566.93700	27727.00000
1981	53639.64700	16351.96700	31027.19900
1982	59114.17500	18004.99500	34415.20000
1983	65115.38400	19403.65400	38394.39900
1984	71446.41400	21116.40200	42988.20000
1985	78496.10600	22628.24900	47787.00000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1960
1966
1972
1978
1984
1990

03/09/76

* TOTREV

\+ TOTCON

03/09/76

YEARS	TOTREV	TOTCON
1960	7920.45390	2658.38100
1961	8414.42600	2696.02600
1962	8980.20800	2975.98000
1963	9568.96100	3135.85400
1964	10305.99300	3518.89600
1965	11061.78200	3917.64400
1966	12138.26500	4192.56400
1967	13009.20300	4309.62000
1968	14100.01400	4742.14390
969	15683.76600	5677.51090
1970	16954.88100	7159.17990
1971	18510.76400	7564.10690
1972	20887.57100	8305.66600
1973	23510.04100	9321.82890
1976	32441.69500	10977.55300
1977	36763.08300	12477.19900
1978	40737.95500	12965.47000
1979	44604.43300	14062.09900
1980	48777.14600	15566.93700
1981	53639.64700	16351.96700
1982	59114.17500	18004.99500
1983	65115.38400	19403.65400
1984	71446.41400	21116.40200
1985	78496.10600	22628.24900

END ILREP

@ASG,T CPM*ILWRITE.

@ERS CPM*ILWRITE.
FURPUR 0026-03/09-11:08

@FREE CORE*MODTEST.
FAC WARNING 100000000000

NOTE: Replace > with @ in actual terminal session.

```
>ASG,T CPM*ILWRITE.
>ERS CPM*ILWRITE.
>FREE CORE*MODTEST.
>CALL ILREP
ESK/HELLO
ECHO YES:
DEFINE MODTEST:BUDGET=75NGP3:DURING 1976-1985:INDEP REV,CON:
YES
PRINT TOTREV,TOTCON,EPS:WITH HIST:ON FILE CPM*ILWRITE:FORMAT (F15.5):
PRINT TOTREV,TOTCON,EPS,RORCEQAVGATT,TOTREV,TOTCON,EPS,RORCEQAVGATT:ON #
FILE CPM*ILWRITE:
PRINT RORCEQAVGATT,EPS,TOTCON,TOTREV:ON FILE CPM*ILWRITE:WITH HISTORICAL:
PRINT TOTREV,TOTCON,EPS,RORCEQAVGATT:ON FILE CPM*ILWRITE:FORMAT #
(F12.3,F15.5,F12.3,F15.5):WITH HISTORICAL:
PRINT TOTREV,TOTCON,EPS,RORCEQAVGATT:FORMAT (I4,4F12.3):#
WITH HISTORICAL:ON TERMINAL:
STOP:
NO
>edq cpm*ilwrite.
p 20000
end
```

```
@CALL ILREP

@XQT CPM*PMOD,MODEL
ILREP 1.3   09 MAR 76 11:08:07
MODEL BEING INITIALIZED
      INTEGRATED LONG RANGE ECONOMIC PLANS
DEFINE MODTEST:BUDGET=75NGP3:DURING 1976-1985:INDEP REV,CON:
YES
SM: ILLEGAL STATEMENT
PRINT TOTREV,TOTCON,EPS:WITH HIST:ON FILE CPM*ILWRITE:FORMAT (F15,5):
PRINT TOTREV,TOTCON,EPS,RORCEQAVGATT,TOTREV,TOTCON,EPS,RORCEQAVGATT:ON #
FILE CPM*ILWRITE:
PRINT RORCEQAVGATT,EPS,TOTCON,TOTREV:ON FILE CPM*ILWRITE:WITH HISTORICAL:
PRINT TOTREV,TOTCON,EPS,RORCEQAVGATT:ON FILE CPM*ILWRITE:FORMAT #
(F12,3,F15,5,F12,3,F15,5):WITH HISTORICAL:
PRINT TOTREV,TOTCON,EPS,RORCEQAVGATT:FORMAT (I4,4F12,3):#
WITH HISTORICAL:ON TERMINAL:
03/09/76
```

TIME	TOTREV	TOTCON	EPS	RORCEQAVGATT
1960	7920,454	2658,381	2,770	,100
1961	8414,426	2696,026	2,760	,095
1962	8980,208	2975,980	2,900	,095
1963	9568,961	3135,854	3,030	,095
1964	10305,993	3518,896	3,240	,095
1965	11061,783	3917,644	3,410	,095
1966	12138,265	4192,564	3,690	,099
1967	13009,204	4309,620	3,790	,097
1968	14100,014	4742,144	3,750	,093
1969	15683,767	5677,511	4,000	,095
1970	16954,881	7159,180	3,990	,092
1971	18510,765	7564,107	3,990	,089
1972	20887,571	8305,666	4,340	,094
1973	23510,041	9321,829	5,060	,105
1976	32641,401	10977,554	5,213	,096
1977	37079,214	12477,200	6,080	,107
1978	41690,096	12965,471	6,036	,102
1979	45656,342	14062,099	5,897	,095
1980	50141,275	15566,937	5,815	,090
1981	55158,197	16351,967	5,831	,087
1982	60808,116	18004,995	6,198	,089
1983	67320,941	19403,654	6,428	,089
1984	73915,492	21116,402	6,377	,085
1985	81262,523	22628,249	6,533	,084

```
STOP:
END ILREP
```

```
*EDQ CPM*ILWRITE.
EDQ 2.7 09 MAR 76 11:08:28
  R=V
EDIT
      7920.45398
      2658.38101
         2.77000
      8414.42603
      2696.02600
         2.76000
      8980.20801
      2975.98001
         2.90000
      9568.96106
      3135.85400
         3.03000
     10305.99304
      3518.89600
         3.24000
     11061.78296
      3917.64401
         3.41000
     12138.26501
      4192.56403
         3.69000
     13009.20398
      4309.62000
         3.79000
     14100.01404
      4742.14398
         3.75000
     15683.76697
      5677.51099
         4.00000
     16954.88110
      7159.17999
         3.99000
     18510.76489
      7564.10699
         3.99000
     20887.57104
      8305.66602
         4.34000
     23510.04102
      9321.82898
         5.06000
     32641.40088
     10977.55396
         5.21290
     37079.21387
     12477.19995
         6.08043
     41690.09619
     12965.47095
         6.03558
     45656.34180
     14062.09900
```

5.89669
50141.27490
15566.93701
5.81518
55158.19678
16351.96704
5.83072
60808.11621
18004.99512
6.19844
67320.94141
19403.65405
6.42786
73915.49219
21116.40210
6.37705
81262.52344
22628.24902
6.53343

32641.40000	10977.55300	5.21290	.09576
37079.21300	12477.19900	6.08043	.10723
41690.09600	12965.47000	6.03558	.10168
45656.34100	14062.09900	5.89669	.09522
50141.27400	15566.93700	5.81518	.09031
55158.19600	16351.96700	5.83072	.08729
60808.11600	18004.99500	6.19844	.08932
67320.94100	19403.65400	6.42786	.08902
73915.49200	21116.40200	6.37705	.08496
81262.52300	22628.24900	6.53343	.08382

32641.40000	10977.55300	5.21290	.09576
37079.21300	12477.19900	6.08043	.10723
41690.09600	12965.47000	6.03558	.10168
45656.34100	14062.09900	5.89669	.09522
50141.27400	15566.93700	5.81518	.09031
55158.19600	16351.96700	5.83072	.08729
60808.11600	18004.99500	6.19844	.08932
67320.94100	19403.65400	6.42786	.08902
73915.49200	21116.40200	6.37705	.08496
81262.52300	22628.24900	6.53343	.08382

.10003	2.77000	2658.38100	7920.45390
.09461	2.76000	2696.02600	8414.42600
.09472	2.90000	2975.98000	8980.20800
.09488	3.03000	3135.85400	9568.96100
.09506	3.24000	3518.89600	10305.99300
.09527	3.41000	3917.64400	11061.78200
.09861	3.69000	4192.56400	12138.26500
.09726	3.79000	4309.62000	13009.20300
.09257	3.75000	4742.14390	14100.01400
.09509	4.00000	5677.51090	15683.76600
.09159	3.99000	7159.17990	16954.88100
.08865	3.99000	7564.10690	18510.76400
.09365	4.34000	8305.66600	20887.57100
.10471	5.06000	9321.82890	23510.04100
.09576	5.21290	10977.55300	32641.40000

.10723	6.08043	12477.19900	37079.21300
.10168	6.03558	12965.47000	41690.09600
.09522	5.89669	14062.09900	45656.34100
.09031	5.81518	15566.93700	50141.27400
.08729	5.83072	16351.96700	55158.19600
.08932	6.19844	18004.99500	60808.11600
.08902	6.42786	19403.65400	67320.94100
.08496	6.37705	21116.40200	73915.49200
.08382	6.53343	22628.24900	81262.52300

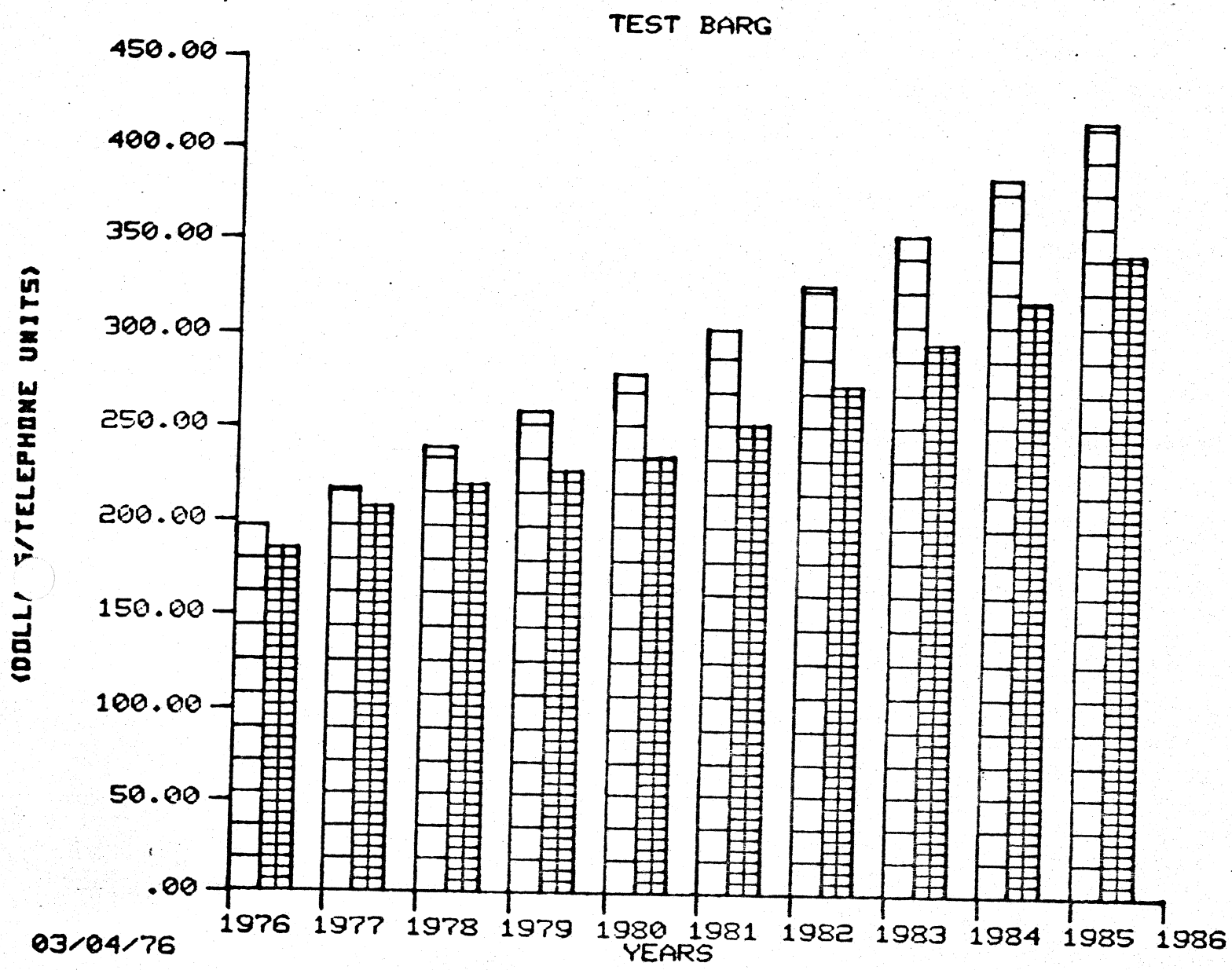
7920.454	2658.38101	2.770	.10003
8414.426	2696.02600	2.760	.09461
8980.208	2975.98001	2.900	.09472
9568.961	3135.85400	3.030	.09488
10305.993	3518.89600	3.240	.09506
11061.783	3917.64401	3.410	.09527
12138.265	4192.56403	3.690	.09861
13009.204	4309.62000	3.790	.09726
14100.014	4742.14398	3.750	.09257
15683.767	5677.51099	4.000	.09509
16954.881	7159.17999	3.990	.09159
18510.765	7564.10699	3.990	.08865
20887.571	8305.66602	4.340	.09365
23510.041	9321.82898	5.060	.10471
32641.401	10977.55396	5.213	.09576
37079.214	12477.19995	6.080	.10723
41690.096	12965.47095	6.036	.10168
45656.342	14062.09900	5.897	.09522
50141.275	15566.93701	5.815	.09031
55158.197	16351.96704	5.831	.08729
60808.116	18004.99512	6.198	.08932
67320.941	19403.65405	6.428	.08902
73915.492	21116.40210	6.377	.08496
81262.523	22628.24902	6.533	.08382

```
2217;EOF AT LINE   145
END EDQ,  .  NO OUTPUT.


@FREE CORE*75PROJ2,
FAC WARNING       100000000000


@FREE CORE*75PROJ1,
FAC WARNING       100000000000
```

```
NOTE: Replace > with @ in actual terminal session.
RESTORE 75PROJ2:
COMPUTE THOUSAND=CONSTANT(1000.):
INPUT DUMVAR:
>ADD MDG*75EPC2.TOTTELLRE
COMPUTE TOTTELLRE=SERIES(DUMVAR):
COMPUTE TOTTELLRE=RATIO(TOTTELLRE,THOUSAND):
YES
COMPUTE OPERPRJ=RATIO(TOTEXPLDP,TOTTELLRE):
INPUT DUMVAR:
>ADD CPM*TESTSTM.DELTA2
COMPUTE OPERREQ=DIFF(TOTEXPLDP,DUMVAR):
COMPUTE OPERREQ=RATIO(OPERREQ,TOTTELLRE):
YES
PLOT OPERPRJ,OPERREQ:DURING 1976-1985:#
YLAB=(DOLLARS/TELEPHONE UNITS):#
XLAB=YEARS:#
MAIN=TEST BARG:#
PAGE LEGN=YES:#
LEGN=INITIAL,REQUIREMENT:#
SUBLEGN=PROJECTION,BLANK:#
BAR DENSITY=25.,25.,75.,75.:#
BARG=YES:BAR CODES=2.,4.:BAR SPACES=1.0:#
xdiv=10.:xMIN=1976.:XMAX=1986:
STOP:
```


TEST BARG
450.00
400.00
350.00
300.00
250.00
200.00
150.00
100.00
50.00
.00
(DOLL/ T/TELEPHONE UNITS)
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
YEARS
03/04/76

03/04/76

TEST BARG

(DOLLARS/TELEPHONE UNITS)

* INITIAL PROJECTION

\+ REQUIREMENT

03/04/76

TEST BARG

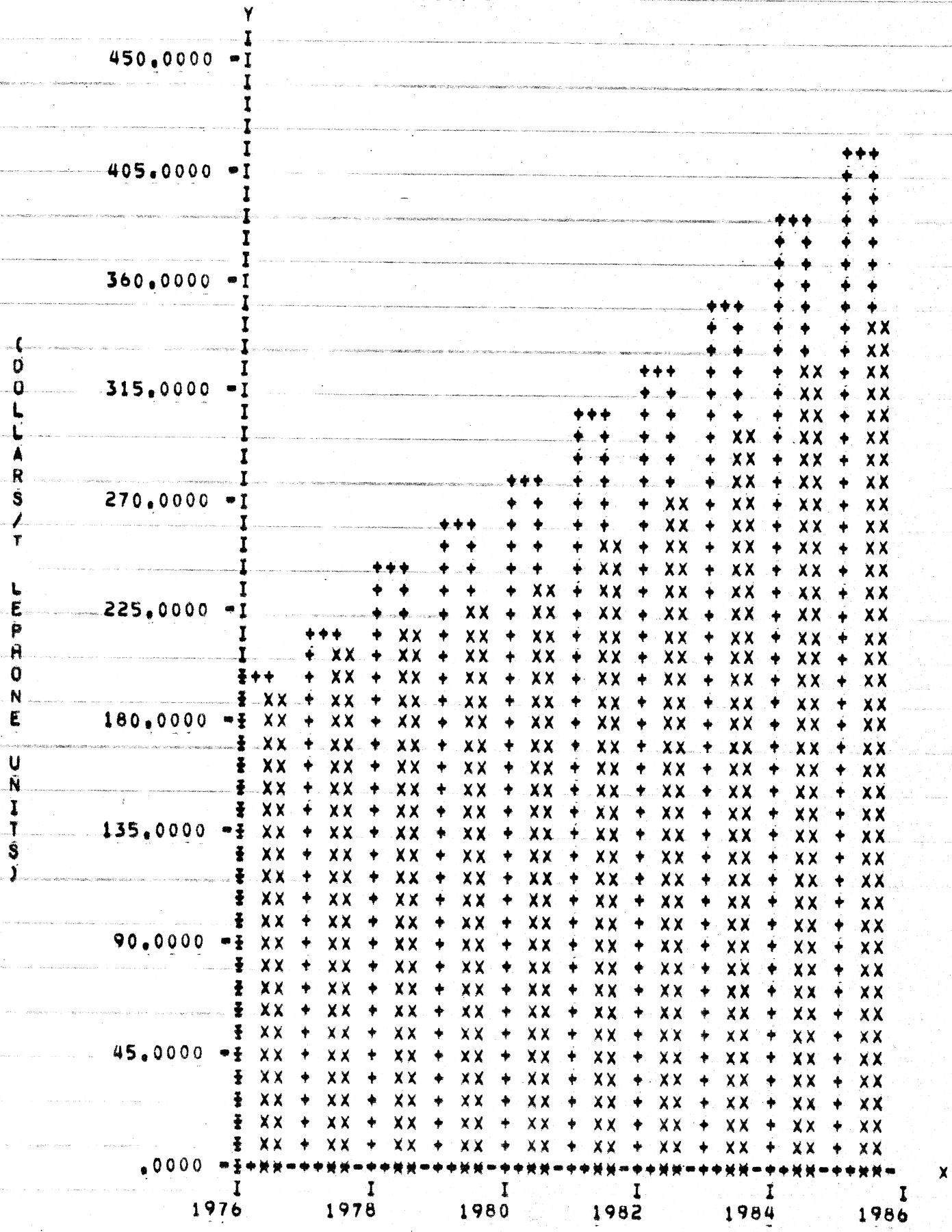
(DOLLARS/TELEPHONE UNITS)

YEARS	INITIAL PROJECTION	REQUIREMENT
1976	197.32882	185.22285
1977	217.04248	208.24533
1978	239.22873	220.16137
1979	258.74092	227.48944
1980	279.28926	235.75451
1981	303.21616	252.67036
1982	326.59119	273.91177
1983	354.10368	296.78955
1984	385.62394	319.46501
1985	417.43756	344.90771

```
*CALL ILREP

*XQT CPM*PMOD,MODEL
ILREP 1.3    09 MAR 76 11:08:33
MODEL BEING INITIALIZED
      INTEGRATED LONG RANGE ECONOMIC PLANS
:
SM: ILLEGAL STATEMENT
SM: COMPUTED VARIABLE NAME IS NOT UNIQUE
SM: DO YOU WISH TO OVERWRITE THE VARIABLE
SM: COMPUTED VARIABLE NAME IS NOT UNIQUE
SM: DO YOU WISH TO OVERWRITE THE VARIABLE
```

TEST BARG


Y
450.0000
405.0000
360.0000
315.0000
270.0000
225.0000
180.0000
135.0000
90.0000
45.0000
.0000
(DOLLARS/TELEPHONE UNITS)
X
1976
1978
1980
1982
1984
1986

LEGEND

INITIAL
03/09REQUIREMENT

TEST BARG

(DOLLARS/TELEPHONE UNITS)

* INITIAL PROJECTION

\+ REQUIREMENT

03/09/76

TEST BARG

(DOLLARS/TELEPHONE UNITS)

YEARS	INITIAL PROJECTION	REQUIREMENT
1976	197.32882	185.22285
1977	217.04248	208.24533
1978	239.22873	220.16137
1979	258.74092	227.48944
1980	279.28926	235.75451
1981	303.21616	252.67036
82	326.59119	273.91177
1983	354.10368	296.78955
1984	385.62394	319.46501
1985	417.43756	344.90771

SAVE MODEL MODTEST YES OR NO
END ILREP

@FREE CORE*75PROJ2.
FAC WARNING 100000000000

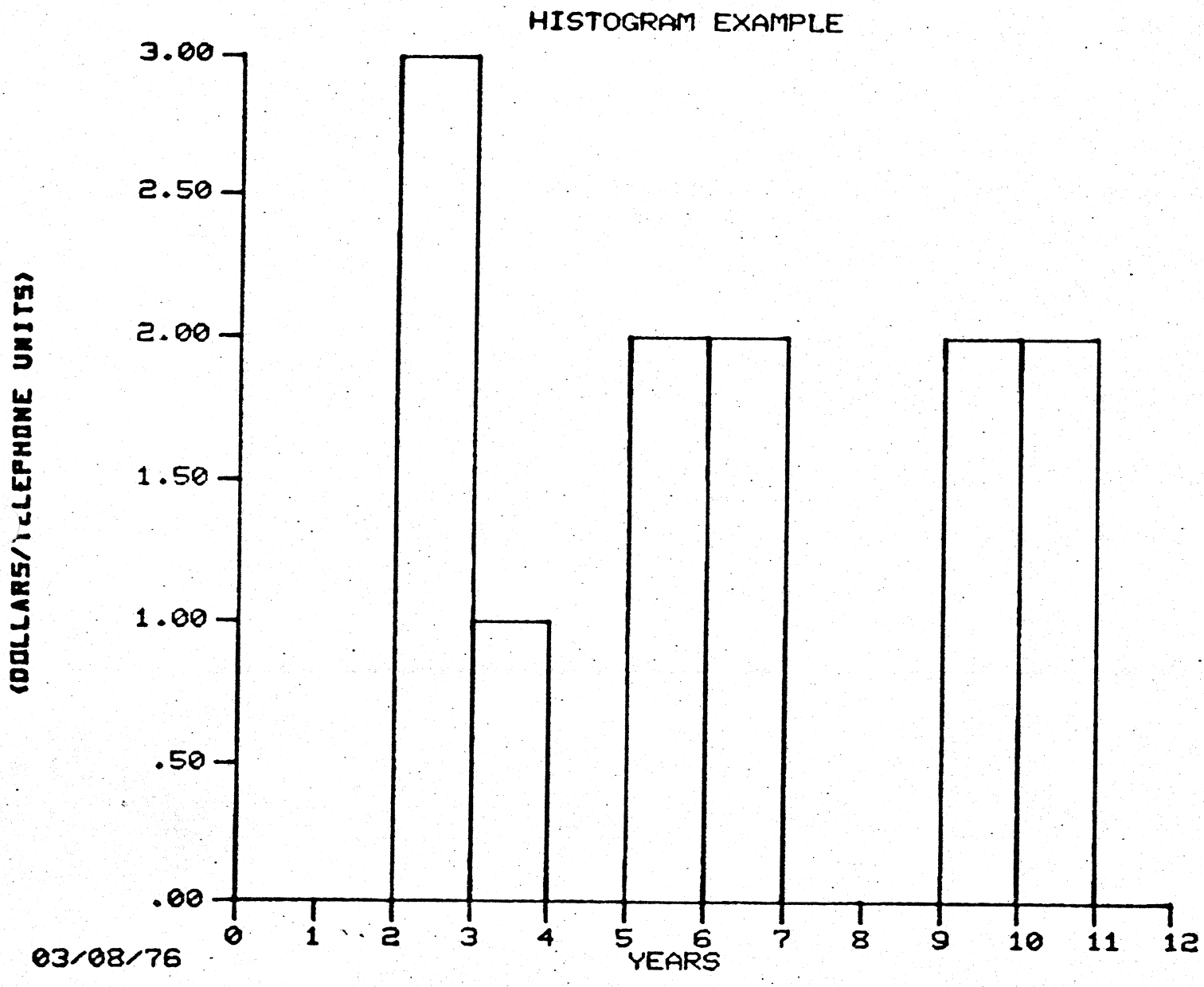
@FREE CORE*75PROJ2.
FAC WARNING 100000000000

@FREE CORE*75PROJ1.
FAC WARNING 100000000000

```
RESTORE 75PROJ2:
COMPUTE YVALUE=CONSTANT(0.):
INPUT DUMVAR:
5.
10.
9.
2.
2.
6.
6.
3.
10.
2.
5.
9.
COMPUTE XVALUE=SERIES(DUMVAR):
print xvalue:
PLOT YVALUE .VS. XVALUE:#
page legn=no:#
LIST=NO:#
XINT=YES:#
XMIN=0.0:XMAX=12.0:XDIV=12.:#
YLAB=(DOLLARS/TELEPHONE UNITS):#
XLAB=YEARS:#
HIST=YES:#
MAIN=HISTOGRAM EXAMPLE:
STOP:
```

03/08/76

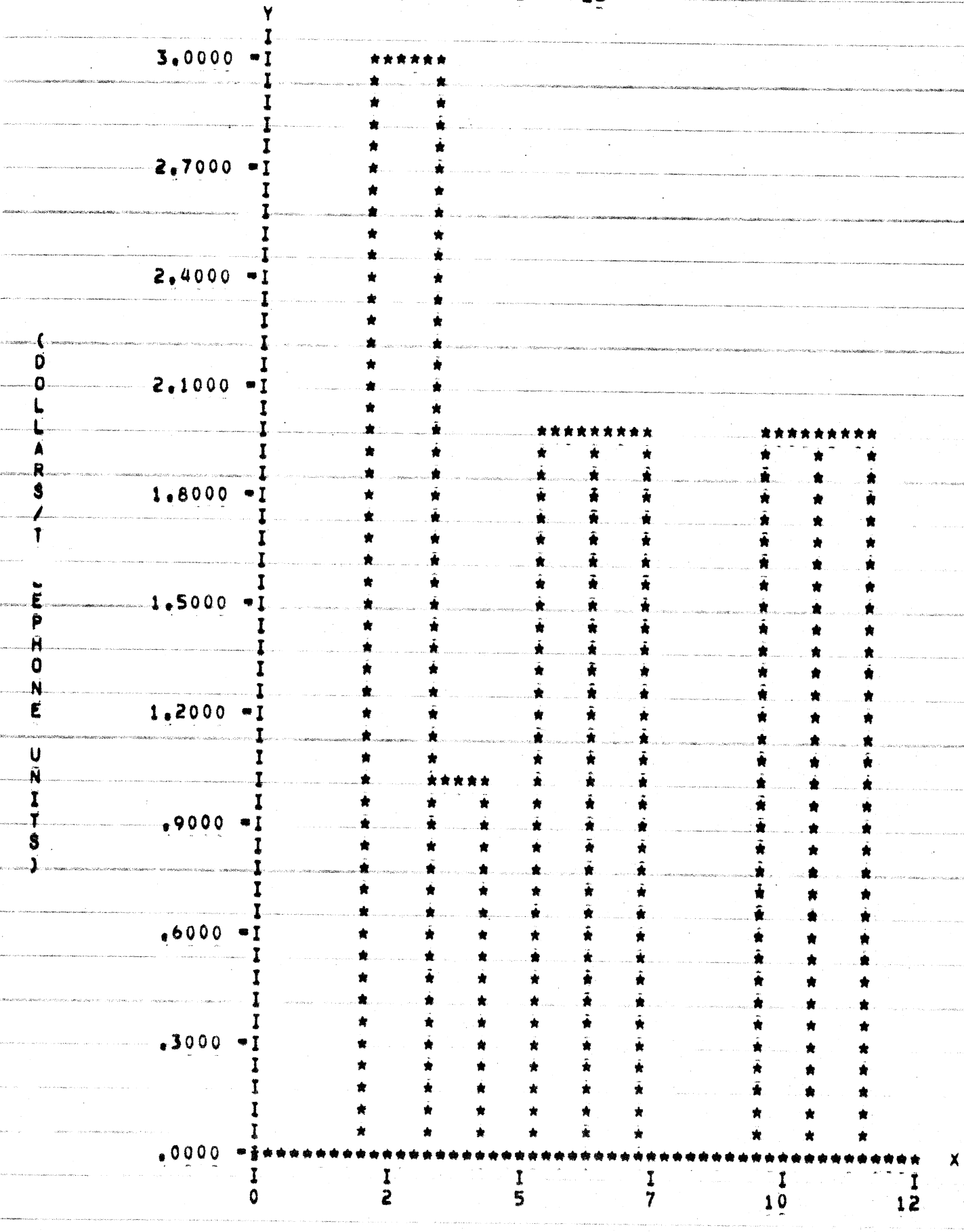
TIME	XVALUE *
1974	5.00000
1975	10.00000
1976	9.00000
1977	2.00000
1978	2.00000
1979	6.00000
1980	6.00000
1981	3.00000
1982	10.00000
1983	2.00000
1984	5.00000
1985	9.00000


HISTOGRAM EXAMPLE
3.00
2.50
2.00
1.50
1.00
.50
.00
(DOLLARS/TELEPHONE UNITS)
0
1
2
3
4
5
6
7
8
9
10
11
12
YEARS
03/08/76

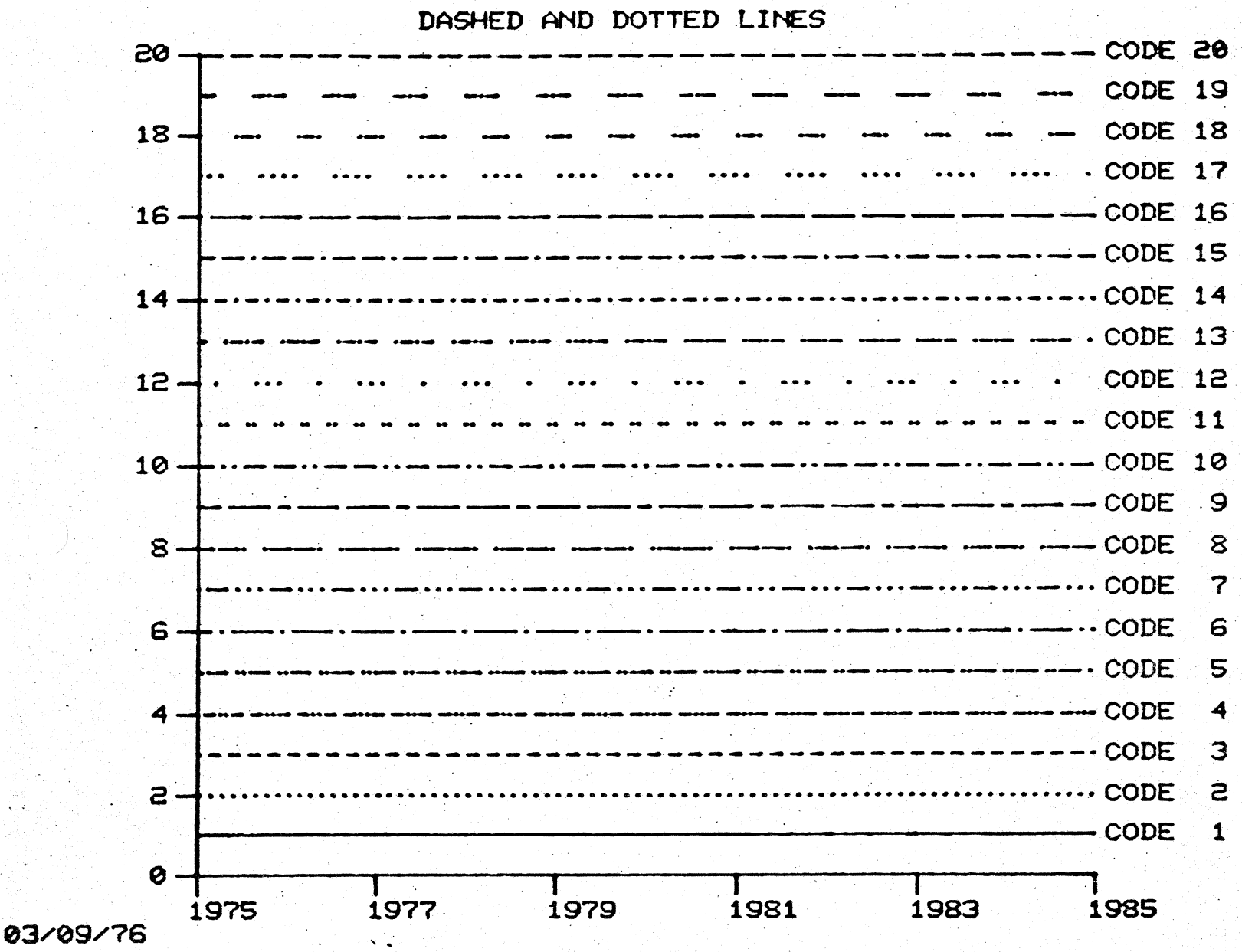
```
*XQT MDG*PMOD2,MODEL
ILREP 1.3   09 MAR 76 15:25:41
ID/PASSWORD/DEV :
MODEL BEING INITIALIZED
      INTEGRATED LONG RANGE ECONOMIC PLANS
:
MODEL BEING RESTORED
RESTORING MODEL KSEL775H      DURING   1974=  1985 INDEP REV    =CON
BUDGET   1975 FINANCING EPC2   CREATED 29 OCT 75 10:58:09
03/09/76
```

TIME	XVALUE *
1974	5.00000
1975	10.00000
1976	9.00000
1977	2.00000
1978	2.00000
1979	6.00000
1980	6.00000
1981	3.00000
1982	10.00000
1983	2.00000
1984	5.00000
1985	9.00000

HISTOGRAM EXAMPLE

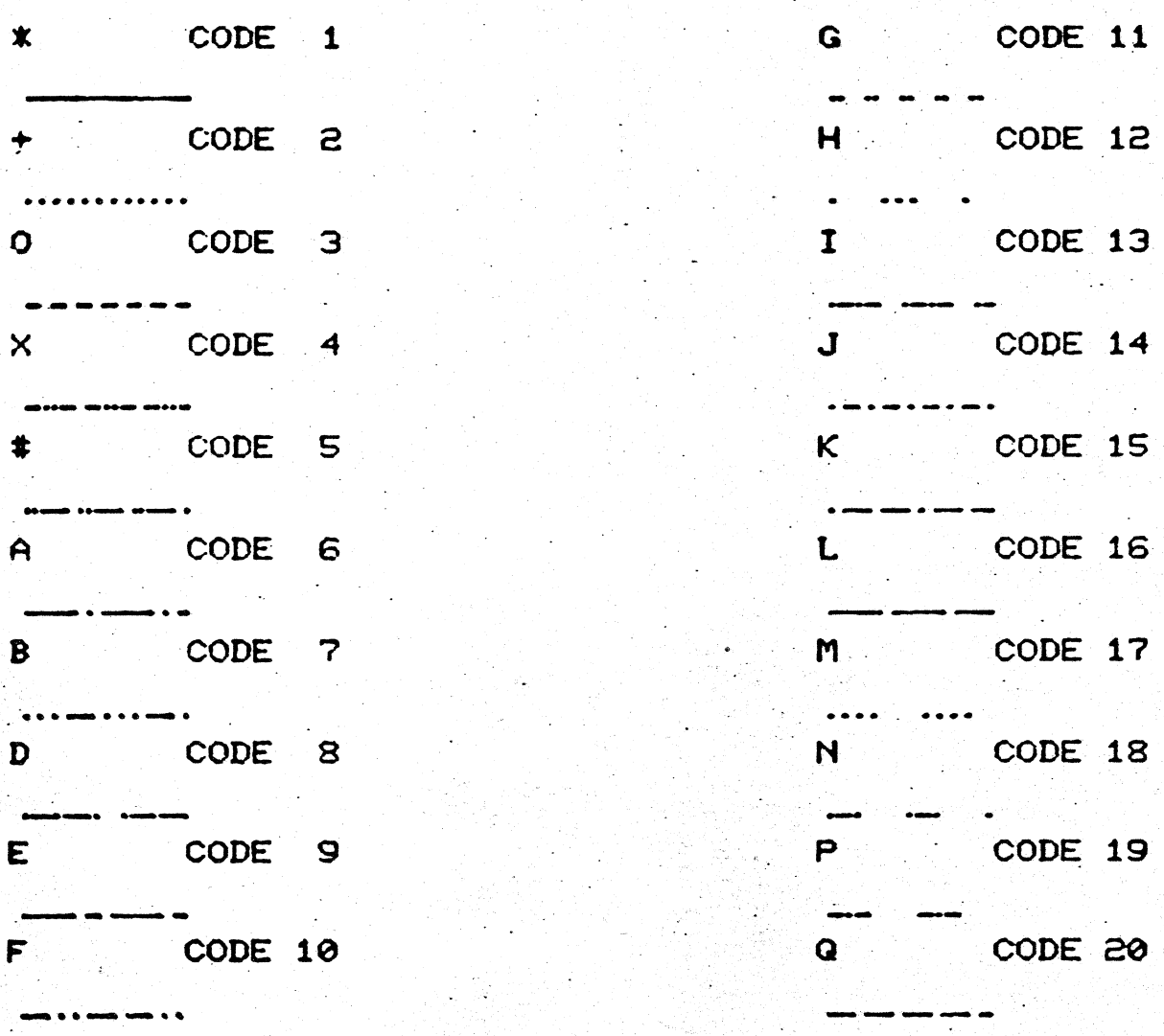


```
RESTORE 75PROJ2:
COMPUTE AA=CONSTANT(1.):
COMPUTE BA=CONSTANT(2.):
COMPUTE CA=CONSTANT(3.):
COMPUTE DA=CONSTANT(4.):
COMPUTE EA=CONSTANT(5.):
COMPUTE FA=CONSTANT(6.):
COMPUTE GA=CONSTANT(7.):
COMPUTE HA=CONSTANT(8.):
COMPUTE IA=CONSTANT(9.):
COMPUTE JA=CONSTANT(10.):
COMPUTE KA=CONSTANT(11.):
COMPUTE LA=CONSTANT(12.):
COMPUTE MA=CONSTANT(13.):
COMPUTE NA=CONSTANT(14.):
COMPUTE OA=CONSTANT(15.):
COMPUTE PA=CONSTANT(16.):
COMPUTE QA=CONSTANT(17.):
COMPUTE RA=CONSTANT(18.):
COMPUTE SA=CONSTANT(19.):
COMPUTE TA=CONSTANT(20.):
PLOT AA,BA,CA,DA,EA,FA,GA,HA,IA,JA,KA,LA,MA,NA,OA,PA,QA,#
RA,SA,TA:#
CLAB=CODE  1,CODE  2,CODE  3,CODE  4,CODE  5,#
CODE  6,CODE  7,CODE  8,CODE  9,CODE 10,#
CODE 11,CODE 12,CODE 13,CODE 14,CODE 15,CODE 16#
,CODE 17,CODE 18,CODE 19,CODE 20:#
DASH CODES=1.,2.,3.,4.,5.,6.,7.,8.,9.,10.,11.,12.,13.,14.,15.,16.,#
17.,18.,19.,20.:#
ON TEK:#
MAIN=DASHED AND DOTTED LINES:#
YINT=YES:PAGE LEGN=YES:#
CHAR=NO:#
XMIN=1975.:XMAX=1985.:XDIV=5.:
STOP:
NO
```


DASHED AND DOTTED LINES
20
18
16
14
12
10
8
6
4
2
0
CODE 20
CODE 19
CODE 18
CODE 17
CODE 16
CODE 15
CODE 14
CODE 13
CODE 12
CODE 11
CODE 10
CODE 9
CODE 8
CODE 7
CODE 6
CODE 5
CODE 4
CODE 3
CODE 2
CODE 1
1975
1977
1979
1981
1983
1985
03/09/76

03. 09/76

DASHED AND DOTTED LINES



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DASHED AND DOTTED LINES

YEARS	CODE 1	CODE 2	CODE 3	CODE 4
1974	1.00000	2.00000	3.00000	4.00000
1975	1.00000	2.00000	3.00000	4.00000
1976	1.00000	2.00000	3.00000	4.00000
1977	1.00000	2.00000	3.00000	4.00000
1978	1.00000	2.00000	3.00000	4.00000
1979	1.00000	2.00000	3.00000	4.00000
1980	1.00000	2.00000	3.00000	4.00000
1981	1.00000	2.00000	3.00000	4.00000
1982	1.00000	2.00000	3.00000	4.00000
1983	1.00000	2.00000	3.00000	4.00000
1984	1.00000	2.00000	3.00000	4.00000
1985	1.00000	2.00000	3.00000	4.00000

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DASHED AND DOTTED LINES

YEARS	CODE 5	CODE 6	CODE 7	CODE 8
1974	5.00000	6.00000	7.00000	8.00000
1975	5.00000	6.00000	7.00000	8.00000
1976	5.00000	6.00000	7.00000	8.00000
1977	5.00000	6.00000	7.00000	8.00000
1978	5.00000	6.00000	7.00000	8.00000
1979	5.00000	6.00000	7.00000	8.00000
1980	5.00000	6.00000	7.00000	8.00000
1981	5.00000	6.00000	7.00000	8.00000
1982	5.00000	6.00000	7.00000	8.00000
1983	5.00000	6.00000	7.00000	8.00000
1984	5.00000	6.00000	7.00000	8.00000
1985	5.00000	6.00000	7.00000	8.00000

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DASHED AND DOTTED LINES

YEARS	CODE 9	CODE 10	CODE 11	CODE 12
1974	9.00000	10.00000	11.00000	12.00000
1975	9.00000	10.00000	11.00000	12.00000
1976	9.00000	10.00000	11.00000	12.00000
1977	9.00000	10.00000	11.00000	12.00000
1978	9.00000	10.00000	11.00000	12.00000
1979	9.00000	10.00000	11.00000	12.00000
1980	9.00000	10.00000	11.00000	12.00000
1981	9.00000	10.00000	11.00000	12.00000
1982	9.00000	10.00000	11.00000	12.00000
1983	9.00000	10.00000	11.00000	12.00000
1984	9.00000	10.00000	11.00000	12.00000
1985	9.00000	10.00000	11.00000	12.00000

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DASHED AND DOTTED LINES

YEARS	CODE 13	CODE 14	CODE 15	CODE 16
1974	13.00000	14.00000	15.00000	16.00000
1975	13.00000	14.00000	15.00000	16.00000
1976	13.00000	14.00000	15.00000	16.00000
1977	13.00000	14.00000	15.00000	16.00000
1978	13.00000	14.00000	15.00000	16.00000
1979	13.00000	14.00000	15.00000	16.00000
1980	13.00000	14.00000	15.00000	16.00000
1981	13.00000	14.00000	15.00000	16.00000
1982	13.00000	14.00000	15.00000	16.00000
1983	13.00000	14.00000	15.00000	16.00000
1984	13.00000	14.00000	15.00000	16.00000
1985	13.00000	14.00000	15.00000	16.00000

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DASHED AND DOTTED LINES

EARS	CODE 17	CODE 18	CODE 19	CODE 20
974	17.00000	18.00000	19.00000	20.00000
975	17.00000	18.00000	19.00000	20.00000
976	17.00000	18.00000	19.00000	20.00000
977	17.00000	18.00000	19.00000	20.00000
978	17.00000	18.00000	19.00000	20.00000
979	17.00000	18.00000	19.00000	20.00000
980	17.00000	18.00000	19.00000	20.00000
981	17.00000	18.00000	19.00000	20.00000
982	17.00000	18.00000	19.00000	20.00000
983	17.00000	18.00000	19.00000	20.00000
984	17.00000	18.00000	19.00000	20.00000
985	17.00000	18.00000	19.00000	20.00000

Appendix XE

Error Messages and Recovery

NOTE: The symbol > appears wherever a character string or number is printed in the error message. The number of >'s equals the maximum number of characters to expect in the string.

The lines following the (c) indicate the cause of the ILREP error. The lines following the (a) describe the action the user should take or the action taken by the ILREP system to recover from the error.

*

BUDGT: PF ERROR
(c) Serious ILREP malfunction.
It is possible that the BUDGET modifier is incorrect.
(a) Bring all related data to ILREP administrator A.S.A.P.

BUDGT: SDF ERROR
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

BUDGT: VARIABLE MISSING: >>>>>>>>>>>>
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

BUDGT: VALUES UNSYNCHRONIZED
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

*

CKCR: YOU MAY NOT ACCESS THIS MODEL
(c) This model was not created under your password, nor is it any of the models described in Appendix XC of the manual.
(a) Check your records for the correct model name

CKCR: MODEL NAME NOT ACCESSIBLE-STATUS: >>>>>>>>>>>>
(c) The model specified on a DEFINE or RESTORE command is not accessible.
(a) Enter @FAC to discover what the number printed in the message means. Try to ascertain why the file CORE*MODEL-NAME. is unavailable. For instance, the number 000000010000 means the file is assigned to another run. Possibly someone else DEFINEd or RESTOREd the same model and has the file assigned to his/her terminal. If this is true, the user must create his/her own version by the following set of commands:

```
@CAT,P CORE*[NEW-MODEL-NAME.],F40
```

(where NEW-MODEL-NAME is the new model name chosen by the user)

```
@COPY CORE*[OLD-MODEL-NAME.],CORE*[NEW-MODEL-NAME.]
```

(where OLD-MODEL-NAME is the file which was inaccessible)
From then on, the user must RESTORE the model by the NEW-MODEL-NAME.

Another possible file problem is that it is assigned to your terminal, producing a FAC WARNING 100000000000. If this is the case, free the file by enter the command:

```
@FREE CORE*[MODEL-NAME.]
```

(where MODEL-NAME is the name used on the DEFINE or RESTORE command) and re-enter the request:

```
@CALL ILREP
```

If you cannot find out why the model is not accessible,
bring all related data to ILREP administrator A.S.A.P.

CKCR: MODEL NAME NOT UNIQUE
(c) A model already exists under this name.
(a) You will be asked to decide to overwrite the existing model, or retype the DEFINE statement.

CKCR: COREDUMP PROBLEM-STATUS: >>>>>>>>>>>>
ee explanation of CKCR: MODEL NAME NOT ACCESSIBLE-STATUS: >>>>>>>>>>>>

CKCR: MODEL NAME CANNOT BE CLEARED-STATUS: >>>>>>>>>>>>
See explanation of CKCR: MODEL NAME NOT ACCESSIBLE-STATUS: >>>>>>>>>>>>

CKCR: BAD I/O STATUS ON COREDUMP WRITE : >>>>>>>>>>>>
See explanation of CKCR: MODEL NAME NOT ACCESSIBLE-STATUS >>>>>>>>>>>>

CKCR: BAD I/O STATUS ON COREDUMP READ : >>>>>>>>>>>>
See explanation of CKCR: MODEL NAME NOT ACCESSIBLE-STATUS >>>>>>>>>>>>

*

COMPUT: ADJUSTED VALUES WILL NOT BE CORRECT SINCE SOME VALUES ARE UNAVAILABLE
(c) The adjust function was requested, but there is missing data in the series, so it could not be performed on any years following the year with the missing data.
(a) Note that some of the data for the series is printed as not available.

COMPUT: CANNOT ADJUST A HISTORIC SERIES
(c) User requested an adjust function for a historic series, but the function is not available for historic series.
(a) Adjust function is not performed on the historic portion of the series.

COMPUT: REQUESTED SERIES IS NOT AVAILABLE FOR INFLATION ADJUSTMENT
(c) User requested an ADJUST function for a series, but the function is not available for that series.
(a) ADJUST function is not performed on the series, but the computed variable-name still exists. Make another request.

COMPUT: VARIABLE IS NOT IN ILREP DATA BASE
(c) User requested a computation to be done on a series which is not in the ILREP data base, nor is it a computed variable.
(a) Input request again.

*

CONSTR: ERROR ON RETURN FROM EQ1 ROUTINE
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

*

EQ1: VARIABLE >>>>>>>>>>>> NOT DEFINED
(c) Serious ILREP malfunction.
Equation contains unknown variable name.
(a) Bring all related data to ILREP administrator A.S.A.P.

EQ1: [VNAME,WNAME] GENNED A CALL TO SOLVE1 - RECURSION
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

EQ1: CALCULATION USES COMPONENT OF A VARIABLE FOR WHICH A TOTAL WAS INPUT
(c) User alteration of the total is not reflected in this

computation
(a) This is a warning only

*

EXPLAN: PF ERROR
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

EXPLAN: SDF ERROR
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

EXPLAN: EARLY END
(c) @EOF was answered to question requiring 'YES' or 'NO'.
(a) Further data in EXPLAIN document skipped.

EXPLAN: DOCUMENT >>>>>>>>>>>> DOES NOT EXIST
(c) The name given is not a legal EXPLAIN object.
(a) Check manual EXPLAIN section and Appendix XG for a list of EXPLAIN objects. If the object is in the manual, but this message is printed, notify the ILREP administrator. Otherwise, enter the correct EXPLAIN command.

*

EXPN: ERROR ON RETURN FROM EQ1 ROUTINE
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

*

FNC: LOG OF NEGATIVE OR 0 VALUE CANNOT BE COMPUTED
(c) User requested LOGE or LOG10 for a series but a value was negative or 0.
(a) The computed series retains the negative or 0 number in that position rather than computing the log value.

*

HSTNAM: INPUT SERIES NAME IS TOO SHORT OR ENDS IN H.
(c) User selected a computed variable name which is either only 1 character long or which ends in H.
This causes conflict with the naming convention
used to create a historical variable, described in SECTION C.3.9
(a) Input request again, choosing a different computed variable name.

*

IFLD: IF OUTPUT ERROR
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

IFLD: END OF DATA W.O. END CONTROL
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

IFLD: PF ERROR
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

IFLD: SDF ERROR
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

IFLD: EARLY IFVNAM END
(c) Serious ILREP malfunction.

(a) Bring all related data to ILREP administrator A.S.A.P.

IFLD: MISSING IF VARIABLE : >>>>>>>>>>>>

(c) Serious ILREP malfunction.

(a) Bring all related data to ILREP administrator A.S.A.P.

IFLD: MORE THAN 11 YEARS

(c) IF run being restored contains more than 11 years of data.

(a) If ILREP-created IF run, see ILREP administrator. If externally created, rerun for 11 years or less.

*

ILOAD: PF ERROR

(c) Serious ILREP malfunction.

(a) Bring all related data to ILREP administrator A.S.A.P.

ILOAD: SDF ERROR

(c) Serious ILREP malfunction.

(a) Bring all related data to ILREP administrator A.S.A.P.

ILOAD: FTABLE OVERFLOW

(c) Serious ILREP malfunction.

(a) Bring all related data to ILREP administrator A.S.A.P.

ILOAD: FPTABLE OVERFLOW

(c) Serious ILREP malfunction.

(a) Bring all related data to ILREP administrator A.S.A.P.

ILOAD: DTBL OVERFLOW

(c) Serious ILREP malfunction.

(a) Bring all related data to ILREP administrator A.S.A.P.

ILOAD: DPTBL OVERFLOW

(c) Serious ILREP malfunction.

(a) Bring all related data to ILREP administrator A.S.A.P.

*

INPT: VARIABLE >>>>>>>>>>>> NOT DEFINED-RETYPE PLEASE

(c) The name given is not a legal variable name.

(a) Check manual Appendix XA.1 for a list of variable names.

INPT: VARIABLE >>>>>>>>>>>> IS A SUBTOTAL - CANNOT BE INPUT
PLEASE INPUT PARTS AS PER DOCUMENTATION

(c) Subtotal variables cannot be input.

(a) Check manual Appendix XA.3 for a list of subtotal variables.

INPT: VARIABLE >>>>>>>>>>>> IS A PARTIAL - TOTAL WAS
ALREADY REPLACED - COMPUTATION CONFLICT.
INPUT NOT ACCEPTED

(c) Partials cannot be altered after the related total has been modified.

(a) Check manual Appendix XA.3 for a list of partial and total variables.

INPT: VARIABLE >>>>>>>>>>>> IS A TOTAL - PARTIAL WAS
ALREADY INPUT - COMPUTATION CONFLICT.
INPUT NOT ACCEPTED

(c) When a partial has been modified, the total is recomputed to reflect this and can no longer be altered by the user.

(a) Check manual Appendix XA.3 for a list of partial and total variables.

INPT: INPUT NOT VALID REENTER PLEASE

(c) The answer is not in the proper 'YES' or 'NO' format.
(a) Retype the input.

INPT: INPUT NOT ACCEPTABLE - REENTER PLEASE
(c) The number typed in is not in the proper format.
(a) Retype the input with decimal, 'D', or carriage return.

*

LIMTS: ILLEGAL VARIABLE NAME: >>>>>>>>>>>>
(c) The name given is not a legal variable name.
(a) Check manual Appendix XA.1 for a list of variable names.

*

LOGIN: BAD I/O STATUS ON LOG READ : >>>>>>>>>>>>
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

LOGIN: BAD I/O STATUS ON LOG WRITE : >>>>>>>>>>>>
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

LOGIN: LOGGING SYSTEM UNSYNCHRONIZED
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

LOGIN: LOG OVERFLOW
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

*

MNTR: SOLVE MUST BE SPECIFIED BEFORE GO
(c) The user entered a GO command, but did not precede it with a SOLVE statement.
(a) Enter a SOLVE statement and then enter a GO statement.

MNTR: LOG FILE LOCKED STATUS: >>>>>>>>>>>>
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

MNTR: UNABLE TO ASSIGN LOG FILE STATUS: >>>>>>>>>>>>
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

MNTR: LOAD FILE ERROR STATUS: >>>>>>>>>>>>
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

MNTR: LOG TROUBLE
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

MNTR: PASSWORD LOAD ERROR
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

MNTR: EARLY EOF
(c) ILREP was not terminated with STOP.
(a) Termination proceeds normally. Use STOP in future.

MNTR: ILLEGAL PASSWORD
(c) Password input has failed security checks.
(a) Verify that you are using your assigned password.

MNTR: INITIAL LOAD ERROR
(c) Serious ILREP malfunction.

(a) Bring all related data to ILREP administrator A.S.A.P.

MNTR: IFLOAD PROBLEM
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

MNTR: SAVE TROUBLE
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

MNTR: ADD TROUBLE
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

MNTR: TROUBLE FREEING INITIALIZATION FILE
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

MNTR: EXPLAIN PROBLEM
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

MNTR: SOLVE PROBLEM
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

*

MSGS: ERROR ON RETURN FROM EQ1 ROUTINE
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

*

OUTPT: ERROR WRITO
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

OUTPT: PF ERROR
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

OUTPT: SDF ERROR
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

OUTPT: >>>>>>>>>>>> CAT BUT NOT ASG-STATUS: >>>>>>>>>>>>
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

OUTPT: >>>>>>>>>>>> USE ERROR-STATUS: >>>>>>>>>>>>
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

OUTPT: VGET ERROR
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

OUTPT: ONLY ONE MATCH ON IF LITERAL
(c) INDEP clause on DEFINE was entered incorrectly.
(a) Restart model with correct DEFINE clause. See section on the INDEP clause.

OUTPT: CONSTRUCTION MUST BE ONE OF THE INPUT VARIABLES
(c) INDEP clause on DEFINE did not have CON as one of the objects.
(a) Restart model with correct DEFINE clause. See section on the INDEP clause.

OUTPT: PROBLEM WITH IF LITERALS
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

*

PASDC: ID TOO LONG - TRY AGAIN
(c) ID has failed security checks.
(a) Verify that you are using an ID of 6 or less characters followed by a / and a password.

PASDC: PASSWORD TOO LONG - TRY AGAIN
(c) Password has failed security checks.
(a) Verify that you are using your assigned password.

*

PASLD: PF ERROR
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

PASLD: SDF ERROR
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

PASLD: OVERFLOW
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

*

PMPLOT: NO PLOT SINCE THE NUMBER OF CURVES TO PLOT IS 0
(c) No curves could be plotted with the PLOT statement because none of the variable names were valid.
(a) Check Appendix XA.1 in manual for variable names and re-enter PLOT statement correctly.

PMPLOT: NO SERIES WITH THE NAME >>>>>>>>>>>>
(c) A variable name requested on the PLOT command is not a legal variable.
(a) Check manual Appendix XA.1 for valid variable names and re-enter PLOT command correctly.

*

PRSR: SUCCESS
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

PRSR: FAILURE
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

PRSR: RECURSION STACK OVERFLOW
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

*

PRT: UNABLE TO ASSIGN FILE >>>>>>>>>>>>
(c) User entered an ON modifier on the PRINT statement, but the QUALIFIER*FILENAME could not be assigned.
(a) Check status of the file, and rectify the problem.

PRT: VARIABLE NAME NOT FOUND
(c) The name given is not a legal variable name
(a) Chech Appendix XA.1 and computed variable names.

PRT: VARIABLE MISSING : >>>>>>>>>>>>
(c) The name given is not a legal variable name.
(a) Check manual Appendix XA.1 for a list of variable names.
*
RESTR: IF OUTPUT PROBLEM-STATUS: >>>>>>>>>>>>
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.
*
REVENU: ERROR ON RETURN FROM EQ1 ROUTINE
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.
*
SLV1: TPF WORD OUT OF RANGE
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.
SLV1: NO EQUATIONS - >>>>>>
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.
*
SM: FIRST STATEMENT MUST BE DEFINE OR RESTORE
(c) First statement was not a DEFINE, RESTORE, EXPLAIN or STOP.
(a) Enter a DEFINE, RESTORE, EXPLAIN or STOP statement.
SM: ILLEGAL STATEMENT
(c) Syntax of statement is incorrect.
(a) Check manual for proper syntax and re-enter statement.
SM: ILLEGAL EXPLAIN OBJECT
(c) EXPLAIN object does not exist or is misspelled.
(a) Check EXPLAIN section and Appendix XG in manual for list of EXPLAIN objects and re-enter correctly. If EXPLAIN object is on list but this error occurs, notify ILREP administrator.
SM: COLON IS MISSING
(c) Statements and modifier clauses must end with a colon but the colon is missing.
(a) Re-enter statement correctly.
SM: >>>>>>>>>> NOT RECOGNIZED
(c) A verb statement or modifier clause was entered incorrectly.
(a) Enter the statement correctly.
SM: ILLEGAL VARIABLE NAME: >>>>>>>>>>>>
(c) Variable name is longer than the 12 characters allowed.
(a) Check manual Appendix XA.1 for list of variable names and enter statement correctly.
SM: VARIABLE NAME IS TOO LONG
(c) Maximum length for a variable name is 12 characters.
(a) Check name in manual Appendix XA.1 and retype request.
SM: COMPUTED VARIABLE NAME IS PART OF ORIGINAL DATA BASE-IT CANNOT BE OVERWRITTEN
(c) User chose a computed variable name which is the name of a series that is part of the ILREP data base.
(a) Input request again, using a different output variable name.
SM: HISTORICAL NAME OF THIS COMPUTED VARIABLE WILL CONFLICT WITH THAT OF

ANOTHER COMPUTED VARIABLE-CHOOSE ANOTHER NAME
(c) A computed variable name was chosen so that all but the last character is identical to a previously named computed variable.
(a) Choose a name so that this conflict does not occur.

SM: COMPUTED VARIABLE NAME IS NOT UNIQUE
(c) A computed variable by the requested name already exists.
(a) Answer the questions which follow this statement to determine where the new computed values will be stored.

SM: POSSIBLE LOSS OF USER COMMAND IF ADD STREAM WAS USED, SINCE USER FAILED TO RESPOND WITH YES, NO OR CR
(c) User was told that the COMPUTED VARIABLE NAME IS NOT UNIQUE and was asked DO YOU WISH TO OVERWRITE THE VARIABLE
or
User was asked DO YOU WISH TO OVERWRITE THE COMPUTED VARIABLES in the case where more than the permissible number of computed variables was requested
but
User failed to answer the question with YES, NO OR CR probably because the runstream was set up in an element and was added at the terminal
(a) Computations may be faulty. Correct add stream and rerun.

SM: ERROR IN INITIALIZING NEW COMPUTED VARIABLE
(c) The computed variable request exceeded the number of permissible variables, so the data was not loaded into the table which stores values
(a) Bring all related data to the ILREP administrator A.S.A.P.

SM: OPEN PARENTHESIS IS MISSING
(c) The open parenthesis on a COMPUTE statement following the function name is missing.
(a) Enter the COMPUTE statement correctly.

SM: FINANCE NAME CAN ONLY BE 4 CHARACTERS
(c) Finance name is too long.
(a) Check name and re-enter DEFINE statement.

SM: BUDGET NAME IS INCORRECT
(c) The budget year can be either the current budget year or one year greater than that, but the BUDGET modifier does not have the correct numeric code in the first two characters of the six character code, or the six character name is wrong.
(a) Check the BUDGET section and Appendix XC to find out the proper budget codes.

SM: BUDGET NAME DOES NOT INDICATE QUARTER.
(c) The BUDGET clause of the DEFINE request did not contain a name with the format YYXXXn, where 'n' is a number from 1 to 4 indicating the quarter of budget data desired.
(a) Re-enter DEFINE statement, with correct BUDGET code, as listed in BUDGET section and APPENDIX XC.

SM: MAX NUMBER OF VARIABLES EXCEEDED
(c) A PRINT request contains more than 20 variable names.
(a) Enter PRINT request with a maximum of 20 variable names.

SM: ILLEGAL MODEL NAME

(c) The model name on the DEFINE or RESTORE statement is longer than 12 characters.
(a) Enter model name correctly.

SM: CONSTRUCTION MUST BE ONE OF THE INDEPENDENT VARIABLES
(c) Construction was not entered as one of the variables in the INDEP modifier of the DEFINE statement.
(a) Enter DEFINE statement with construction (CON) as one of the independent variables in the INDEP clause.

SM: USER CANNOT START BEFORE >>>> - RESET BY SYSTEM
(c) Non-privileged user entered a DURING statement with a start year equal to the budget year. Non-privileged users must start no earlier than one year after the budget year.
or
User attempted to start model before the current budget year.
(a) System changes start year to the correct number.

SM: BEGIN YEAR TOO LARGE
(c) Start year on DURING clause is greater than the current budget year + 10.
(a) Enter statement with correct start year on the DURING clause.

SM: SECOND YEAR CANNOT BE GREATER THAN 19YY-RESET TO 19YY
(c) End year on DURING clause was too large. The YY in the message will actually be the last two digits of the budget year + 10.
(a) System reset to last allowable year.

SM: SECOND YEAR IS LESS THAN FIRST YEAR
(c) DURING clause has end year less than start year.
(a) Enter statement again, with correct DURING clause.

SM: FILE NAME TOO LONG
(c) File name can be maximum of 25 characters. The qualifier and file name can each contain 12 characters and they are separated by an asterisk. User entered an incorrect file name on an ON or FROM modifier.
(a) Enter statement with correct file name.

SM: FORMAT SPECIFICATION TOO LONG
(c) User chose the FORMAT modifier but input a format statement longer than 144 characters.
(a) The statement is not accepted. Choose a shorter format statement.

SM: NO * TO SEPARATE QUALIFIER AND FILE NAME
(c) User has entered a FROM modifier on a DEFINE statement, but the asterisk is missing from the QUALIFIER*FILENAME.
(a) Re-enter the statement with the correct file name.

SM: MAX NUMBER OF PLOTS EXCEEDED
(c) More than 20 curves were requested in PLOT command.
(a) Enter PLOT statement with correct number of variables.

SM: CURVE LABEL TOO LONG
(c) The CLAB, LEGN or SUBLEGN modifier on the PLOT or PRINT statement contains more than 12 characters for a curve or legend label.
(a) Re-enter PLOT request with labels no more than 12 characters long and make sure each label is separated by a comma.

SM: TITLE, X OR Y LABEL TOO LONG
(c) The TITLE, SUBTITLE, x or y axis label specified using the MAIN,

SUBT, XLAB or YLAB modifiers on the PLOT statement is longer than 40 characters.
(a) Re-enter the PLOT request with shorter label.

SM: TOO MANY CHARACTERS SPECIFIED
(c) Only 20 characters can be specified in the CHAR modifier of the PLOT statement, since a maximum of 20 curves are plotted on one graph.
(a) Re-enter PLOT statement with the correct CHAR modifier.

SM: MAXIMUN FLOATING POINT INPUT EXCEEDED
RESET TO MAXIMUM ALLOWABLE NUMBER
(c) User attemped to input more than the allowable number of floating point values.
(a) ILREP reads in as many as are allowed and ignores the rest.

SM: STRING LENGTH TRUNCATED TO 6 CHARACTERS
(c) User chose the XTXT (or YTXT) PLOT MODIFIER, but specified more than 6 characters per string.
(a) First 6 characters are used by ILREP. The remaining characters are ignored.

SM: ONLY 30 TXT STRINGS ALLOWED
(c) User chose the XTXT (or YTXT) PLOT MODIFIER, but specified more than 30 text strings.
(a) Each string specified after the limit of 30 overwrites the 30th text string.

SM: BAUD RATE MUST BE 300 OR 1200-SET TO 1200
(c) User chose the BAUD modifier but did not correctly specify the baud rate.
(a) Baud rate is assumed to be 1200.

SM: TROUBLE LOADING USERS IF OUTPUT
(c) The user entered a FROM clause on the DEFINE statement to load an IF output created external to the ILREP system, but there was trouble loading it.
(a) Make sure the QUALIFIER*FILENAME is correct. If it is, bring all related material to the ILREP administrator A.S.A.P.

SM: FUNCTION DOES NOT EXIST
(c) The user requested a function to be performed by the COMPUTE statement but the function is either misspelled or does not exist.
(a) Check manual section on COMPUTE for a list of available functions and re-enter the statement correctly.

*

STRIP: SDF ERROR
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator.

*

TRMT: ERROR IN LINKAGE ATTEMPT - IF NOT STARTED
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

TRMT: ERROR FREEING CORE FILE
(c) Serious ILREP malfunction.
(a) Bring all related data to ILREP administrator A.S.A.P.

```
TRMT: OUTPUT ERROR
   (c) Serious ILREP malfunction
   (a) Bring all related data to ILREP administrator A.S.A.P.
TRMT: ERROR FREEING IF OUTPUT FILE
   (c) Serious ILREP malfunction.
   (a) Bring all related data to ILREP administrator A.S.A.P.
TRMT: SAVE ERROR
   (c) Serious ILREP malfunction.
   (a) Bring all related data to ILREP administrator A.S.A.P.
*
TTREAD: LANGUAGE STATEMENT IS LONGER THAN 1000 CHARACTERS
        REMAINDER OF STATEMENT WILL BE TRUNCATED
*
TXS: ERROR ON RETURN FROM EQ1 ROUTINE
   (c) Serious ILREP malfunction.
   (a) Bring all related data to ILREP administrator A.S.A.P.
*
VGET: TOO MANY YEARS
   (c) Serious ILREP malfunction.
   (a) Bring all related data to ILREP administrator A.S.A.P.
*
VGETS: CALC USES SUBPART OF >>>>>>>>>>>> WHERE TOTAL WAS INPUT
   (c) Serious ILREP malfunction.
   (a) Bring all related data to ILREP administrator A.S.A.P.
VGETS: VARIABLE NAME MISSING: >>>>>>>>>>>>
   (c) The name given is not a legal variable name.
   (a) Check manual Appendix XA.1 for a list of variable names.
VGETS: ERROR FROM VPOS - VARIABLE : >>>>>>>>>>>>
   (c) Serious ILREP malfunction.
   (a) Bring all related data to ILREP administrator A.S.A.P.
*
```

Appendix XF

List of ILREP vocabulary:

VERBS	MODIFIERS	OBJECTS
EXPLAIN		EXPLAIN, etc.
DEFINE	DURING,INDEP,FINANCE,BUDGET, FROM	model-name
RESTORE		model-name
STOP		
PRINT	DURING,ON,PRINT/PLOT modifiers, WITH HISTORICAL,FORMAT	variable-name(s)
PLOT	DURING,ON,PRINT/PLOT modifiers, WITH HISTORICAL	variable-name(s)
CLEAR		ON,PLOT,PLOT modifiers
INPUT	DURING, WITH HISTORICAL	variable-name
SOLVE		model-name(implied)
SAVE		model-name(implied)
COMPUTE	DURING, WITH HISTORICAL	variable-name(s)
GO		
ECHO		YES or NO

Verbs and modifiers must be followed by a colon. a pound sign (#) may be used to continue a request on another line. For more specific information on a verb or modifier enter:

```
EXPLAIN verb-name:
        or
EXPLAIN modifier-name:
```

where the name of the verb or modifier to be explained should replace the word verb-name or the word modifier-name.

Appendix XG

List of Additional EXPLAIN Objects

ILREP	explanation of Integrated Long-Range Economic Planning Model
IF	explanation of the Interactive Financial Model runstream
LANGUAGE	syntax of the language
EQUATIONS	list of equation lists
EQSOLVE	list of the equations used in SOLVE
EQFLOCK	list of the equations to compute flow/stock variables
VARIABLES	list of variable lists
VARNAMES	list of variables and description -names alphabetized
VARDEFS	list of variables and description -description alphabetized
VARUSAGE	list of partials, subtotals, totals, IF input, report, IF output
VARIFINPUT	list of IF input variables
VARSTCKFLOCK	list of stock and flow/stock variables
VARRESTORE	list of variables restored on second restore
VARHISTORIC	list of variables with historic values available
GENMODS	names and descriptions of Base and Reference Models
SAMPLES	sample runstreams and output of ILREP sessions
ERRORS	error messages and recovery
IFOUTPUT	list of IF output titles with ILREP variable names
INCOMESTATE	list of variables on income statement
DETINCOME	list of variables on detailed income statement
EXTERNALFIN	list of external financing variables
BALANCE	list of balance sheet variables
RATIO	list of ratio analysis variables
FINANCVALS	List of Finance Variables and Values
FINANC75PRJ1	Values for 75PROJ1 Finance Variables
FINANC75OBJ1	Values for 75OBJ1 Finance Variables
FINANC75PRJ2	Values for 75PROJ2 Finance Variables
FINANC75OBJ2	Values for 75OBJ2 Finance Variables
SAMPLE1	runstream using EXPLAIN verb
SAMPLE2	runstream using DEFINE verb with BUDGET, FINANCE, INDEP, DURING modifiers, and SOLVE, SAVE, GO verbs
SAMPLE3	runstream using RESTORE and STOP verbs
SAMPLE4	runstream using PRINT and PLOT verbs, ON and PLOT mods
SAMPLE5	runstream using INPUT verb
SAMPLE6	runstream using COMPUTE with RATIO function
SAMPLE7	runstream using COMPUTE with SHORTFALL function
SAMPLE8	runstream using COMPUTE with ADJUST function
SAMPLE9	runstream showing how to produce JANUS charts
SAMPLE10	runstream using DEFINE verb with FROM modifier
SAMPLE11	runstream using WITH HISTORICAL modifier
SAMPLE12	runstream using FORMAT and ON FILE modifiers
SAMPLE13	runstream to produce bar graph

SAMPLE14 runstream to produce histogram graph
SAMPLE15 runstream to produce dashed and/or dotted lines

APPENDIX XH

IF OUTPUT TITLES WITH ILREP VARIABLE NAMES

Income Statement	Appendix XH.1
Details of Income Statement	Appendix XH.2
External Financing	Appendix XH.3
Balance Sheet	Appendix XH.4
Ratio Analysis	Appendix XH.5

APPENDIX XH.1

INCOME STATEMENT

LONG FORM	SHORT FORM	MNEMONIC
REVENUES	REVENUES	TOTREV
OPERATING EXPENSES	OP.EXPENSES	TOTEXPLDP
DEPRECIATION	DEPRECIATION	TOTDEP
TOTAL EXPENSES	TOT.EXPENSES	TOTEXP
NET OPERATING REVENUES	NET OP.REV.	NOR
FEDERAL INCOME TAX	FIT	FITTAX
OTHER TAXES	OTHER TAXES	TOTTAXLFI
TOTAL TAXES	TOTAL TAXES	TOTTAX
OTHER INCOME	OTHER INCOME	OTHINC
INCOME BEFORE INTEREST DEDUCTION	I.B.I.D.	INCBDEITR
INCOME ATTRIB. TO MINORITY INTERESTS	INC.ATT.MIN.	INCMIN
INTEREST	INTEREST	ITR
DIVIDENDS (PREFERRED)	DIV.(PR.)	PRFDIV
DIVIDENDS (COMMON)	DIV.(COM.)	CMNDIV
RETAINED EARNINGS	RET.EARN.	RTE
CONSTRUCTION	CONSTRUCTION	TOTCON
RETAINED EARNINGS AND DEPRECIATION	RET.ERN.&DEP	RTEANDDEP
NET OTHER RESOURCE(TAX CREDITS, DEFFERALS)	NET OTH.RES.	NETOTHRES
NEW MONEY REQ.	NMR	NEWMONREQ
OTHER REQUIREMENTS	OTH.REQUIR.	TOTOTHREQ
TOTAL EXTERNAL FINANCING	TOT.EXT.FIN.	TOTEXF
	INT.COV.POST	ITRCOVPST
	INT.COV.PRE	ITRCOVPAT
	RR AV.CAP	RORATC
	EPS	EPS

APPENDIX XH.2

DETAILS OF INCOME STATEMENT

LONG FORM	SHORT FORM	MNEMONIC
EXPENSES (TOTAL)	EXP.(TOT)	TOTEXP
DEPRECIATION	DEPRECIATION	TOTDEP
OTHER OPERATING EXPENSES	OTH.OP.EXP.	TOTEXPLDP
TOTAL WAGES EXPENSED	TOT.WAG.EXP.	TOTEXPWAG
RELIEF AND PENSION CAPITALIZED	REL.&PEN.CAP.	RLPCAP
TAXES (TOTAL)	TAXES (TOT)	TOTTAX
FEDERAL INCOME TAX	FIT	FITTAX
TAXABLE INCOME	TAXABLE INC.	TAXINC
ADJUSTMENT TO TAXABLE INCOME	ADJ.TAX.INC.	TAXINCADJ
F.I.T. RATE	FIT RATE	FITTAXRAT
AMORTIZATION OF RESERVES	AMORT.OF RES	TAXCDTAMR
OTHER TAXES	OTHER TAXES	TOTTAXLFI
PROPERTY	PROPERTY	PRPTAX
GROSS RECEIPTS	GR.RECEIPTS	GRSTAX
CAPITAL STOCK	CAP.STOCK	CAPTAX
OTHER (MOSTLY STATE AND LOCAL INCOME)	OTHER TAX	SLITAX
SOCIAL SECURITY	SOC.SEC.	SSCTAX
OTHER INCOME	OTH.INC.	OTHINC
PROP.INT.IN EARN.OF UNCONSOL.SUBS.	PROP.INT.	PRPITREUS
INTEREST UNDER CONSTRUCTION	I.D.C.	ITRCON
PLANT UNDER CONSTRUCTION	PLANT U.CON.	PLTUNDCON
INTEREST RATE FOR IDC	INT.RATE-IDC	ITRIDCRAT
MISC.OTHER INCOME (NET OF DEDUCTIONS)	MISC.OI	MISCINCOTH
INTEREST EARNED ON POOL OF FUNDS	INT.EAR.POF	ITRPOF
NET DEDUCTIONS (INCL.TAXES)	NET DEDUCT.	NETDED
INCOME ATTRIB. TO MINORITY INTERESTS	INC.ATT.MIN.	INCMIN
RETAINED EARNINGS ATTRIB. TO MIN.INT	R.EARN.A.MIN.	RTEMIN
DIVIDENDS PAID TO MINORITY INT.	DIV.-MIN.	DIVMIN
CONSTRUCTION	CONSTRUCTION	TOTCON
ADDITIONS TO DEPRECIABLE PLANT	ADD.DEPR.PLN.	ADDDPT
FURNITURE	FURNITURE	FRNDPT
CENTRAL OFFICE BUILDINGS	CEN.OF.BUILD.	COBDPT
CENTRAL OFFICE EQUIPMENT	CEN.OF.EQUIP	COEDPT
STATION APPARATUS	ST.APPARATUS	STPDPT
STATION CONNECTION	ST.CONNEC.	STCDPT
DISTRIBUTION PLANT	DISTR.PLANT	DSTDPT
OTHER BUILDINGS	OTH.BUILD.	OTBDPT
MOTOR VEHICLES	MOTOR VEH.	MVHDPT
NET OTHER RESOURCES	NET OTH.RES.	NETOTHRES
DEFERRED TAX	DEFERRED TAX	DEFTAX
TAX CREDIT NET	TAX CR.NET	TAXCDTNET
REALIZED	REALIZED	TAXCDTREL
AMORTIZED	AMORTIZED	TAXCDTAMR

INCREASE IN NON-CONS.SUBS.INVEST	INC.UNC.S.IN	NCSINVCHG
MISCELLANEOUS OTHER RESOURCES(NET)	MISC.OTH.RES.	MSCOTHRES
W.E.DEFERRED TAX CREDIT	W.E.DEF.TAX	WECTAXDEFCDT
TOTAL OTHER REQUIREMENTS	OTH.REQUIR.	TOTOTHREQ
CHANGE IN LEVEL OF POOL OF FUNDS	CHNGE. IN POF	LEVPOFCHG
BOND RETIREMENTS	BOND.RETIRM.	BNDRET
PREFERRED RETIREMENTS	PREF.RETIRM.	PRFRET

APPENDIX XH.3

EXTERNAL FINANCING

LONG FORM	SHORT FORM	MNEMONIC
TOTAL EXTERNAL FINANCING	TOT.EXT.FIN.	TOTEXF
TOTAL EQUITY SOLD IN YEAR	TOT.EQ.S.-YR	TOTEQTSLD
PREFERRED EQUITY SOLD	PR.EQ.SOLD	PRFEQTSLD
	PR.DIV.RATE	PRFDIVRAT
	QPFD	QTREQTPRF
COMMON EQUITY SOLD	COM.EQ.SOLD	CEQSLD
EQUITY SOLD TO MIN.SHAREHOLDERS	EQ.SOLD-MIN.	MINEQTSLD
AT&T COMMON EQUITY SOLD	AT&T C.EQ.S.	ATTCEQSLD
NUMBER OF NEW COMMON SHARES SOLD	# NEW COM.SH	NEWSHRCMNSLD
MARKET PRICE PER SHARE	MARKET PR/SH	MKTPCESHR
PRICE/EARNINGS RATIO	P/E RATIO	PCEERNRTO
PROCEEDS PRICE PER SHARE	PROC.PR/SH	PCESHRPDS
MARKET/BOOK RATIO	M/B RATIO	MBR
QUARTER IN WHICH C.EQ. IS SOLD	QCOM	QTRCEQ
PER SHARE COMMON DIVIDEND	PER SH C.DIV	DPSCMN
TOTAL LONG TERM DEBT SOLD IN YEAR	TOT.LTD S-YR	LTMDBTSLD
NEW LONG TERM DEBT	NEW LTD	NEWDBTLTM
DEBT RETIRED AND REFINANCED	DEBT RET&REF	BNDRET
LONG TERM INTEREST RATE	LT INT.RATE	ITRLTMRAT
NET CHANGE IN SHORT TERM DEBT	NET CH.SHD	NETDBTSTMCHG
SHORT TERM INTEREST RATE	ST INT.RATE	ITRSTMRAT

APPENDIX XH.4

BALANCE SHEET ITEMS

LONG FORM	SHORT FORM	MNEMONIC
GROSS PLANT	GROSS PLANT	GRSPLT
DEPRECTIATION RESERVE	DEP.RESERVE	TOTDEPRES
NET PLANT	NET PLANT	NETPLT
PLANT RETIREMENTS	PLANT RET.	TOTRET
POOL OF FUNDS	POF	POF
INVEST.CREDIT RESERVE	INV.CR.RES.	ICR
INVEST IN NON-CONS.SUBS.	INV.UNC.SUB.	NCSINV
ACCUMULATED DEFER. TAX	ACC.DEF.TAX	DEFTACACU
(GROSS PLANT FIGURES)		
STATION CONNECTIONS	GP-ST.CON.	STCPLT
STATION APPARATUS	GP-ST.APPAR.	STPPLT
GENERAL EQUIPMENT	GP-GEN.EQUIP	GEQPLT
DISTRIBUTION PLANT	GP-DIST.PLNT	DSTPLT
LAND AND BUILDINGS	GP-LAND&BUIL	LDBPLT
CENTRAL OFFICE EQUIPMENT	GP-CEN.OFF.E	COEPLT
(RETIREMENTS FIGURES)		
STATION CONNECTIONS	RET-ST.CON.	STCRET
STATION APPARATUS	RET-ST.APPAR	STPRET
GENERAL EQUIPMENT	RET-GEN.EQ.	GEQRET
DISTRIBUTION PLANT	RET-DIST.PL.	DSTRET
LAND AND BUILDINGS	RET-LND&BUIL	LDBRET
CENTRAL OFFICE EQUIPMENT	RET-CENT.O.E	COERET
TOTAL CAPITAL	TOT.CAPITAL	TOTCAP
TOTAL DEBT	TOT.DEBT	TOTDBT
LONG TERM	LONG TERM	LTMDBT
SHORT TERM	SHORT TERM	STMDBT
TOTAL EQUITY	TOT.EQUITY	TOTEQT
PREFERRED EQUITY	PR.EQUITY	PFREQT
COMMON EQUITY	COM.EQUITY	CEQ
MINORITY EQUITY	MIN.EQUITY	MINEQT
AT&T EQUITY	AT&T EQUITY	ATTEQT
(% OF TOTAL CAPITAL FIGURES)		
TOTAL DEBT	TOT.DEBT-%	DBTRTOACH
LONG TERM	LONG TERM-%	LTMDBTPCT
SHORT TERM	SHORT TERM-%	STMDBTPCT
TOTAL EQUITY	TOT.EQ.-%	TOTEQTPCT
PREFERRED EQUITY	PR.EQ.-%	PRFEQTPCT
COMMON EQUITY	COM.EQ.-%	TOTCEQPCT
MINORITY EQUITY	MIN.EQ.-%	MINEQTPCT
AT&T EQUITY	AT&T EQ.-%	ATTEQTPCT
TOTAL SHARES OUTSTANDING	TOT.SH.OUTST	TOTSHROUT
BOOK VALUE PER SHARE(EOY)	BOOK VAL./SH	BVS
AVERAGE TOTAL CAPITAL	AV.TOT.CAP.	TOTCAPAVG

AVERAGE COMMON EQUITY	AV.COM.EQ.	AVGCEQ
AVERAGE AT&T COMMON EQUITY	AV.AT&T C.E	ATTCEQAVG
AVERAGE TOTAL SHARES	AV.TOT.SHS	TOTSHRAVG

APPENDIX XH.5

RATIO ANALYSIS

LONG FORM	SHORT FORM	MNEMONIC
NEW OPERATING RATIO	NEW OP.RATIO	NEWOPRRTO
TRADITIONAL OPERATING RATIO	TRAD.OP.RAT.	TRDOPRRTO
REVENUE TO AV.TOT.CAPITAL	REV/AV.CP.	REVATCRTO
CASH FLOW/AV.TOT.CAPITAL	CSH.FL/AV.CP	CFLATCRTO
INTEREST COVERAGE-PRE	INT.COV.PRE	ITRCOVPAT
INTEREST COVERAGE-POST	INT.COV.POST	ITRCOVPST
RTE OF RETURN ON AVERAGE TOTAL CAPITAL	RR AV.CAP.	RORATC
PRE ALL TAX R.R.ON AV.TOT.CAPITAL	PRE-TAX RR	RORATCPAT
PRE INC.TAX R.R.ON AV.TOT.CAPITAL	PRE-INC.TX.RR	RORATCPIT
PRE-FIT RATE OF RETURN ON AVE.TOT.CAP	PRE-FIT RR	RORATCPFT
RATE OF RETURN ON AV. TOTAL EQUITY	RR AV.TOT.EQ	ROREQTAVGTOT
RATE OF RETURN ON AVERAGE AT&T EQUITY	RR AV.ATT.EQ	ROREQTAVGATT
RTE OF RETURN ON AV.AT&T COMMON EQUITY	RR AV.ATT.CE	RORCEQAVGATT
DEBT RATIO (ACHIEVED)	DEBT RAT.ACH	DBTRTOACH
DEBT RATIO(OBJECTIVE)		
LOAN RATIO(ACHIEVED)	LOAN RAT.ACH	LRTACH
LOAN RATIO(OBJECTIVE)		
FRACTION DEBT SOLD IN 1ST HALF OF YR	DBT S.1/2 YR	FRCDBTHY1
PAYOUT RATIO	PAYOUT RATIO	PAYRTO
AGGREGATE PAYOUT RATIO FOR MIN.INT.	PAY.RAT.-MIN	APRMIN
NEW MONEY TO CONSTRUCTION	NMR/CON	NEWMONCON
AVERAGE BOOK VALUE PER SHARE	BVSA	BVSAVG
EARNINGS PER SHARE(FULLY DILUTED)	EPS (DILUT.)	EPSFLD
EARNINGS PER SHARE	EPS	EPS

APPENDIX XI

FINANCE STREAM VARIABLE VALUES

	APPENDIX
75PROJ1	XI.1
75OBJ1	XI.2
75PROJ2	XI.3
75OBJ2	XI.4

APPENDIX XI.1

Values for Finance Variables for 75PROJ1

APRMIN	Aggregate payout ratio for minority interest .85 for 1976 to 1983
MINEQTSLD	New equity sold to minority shareholders 35. for 1976 to 1978, 50. for 1979 to 1983
DBTRTOACH	Objective Debt Ratio .492,.485,.48,.47,.46,.45,.45,.45,. for 1976 to 1983
ITRLTMRAT	Long Term Interest Rate .083,.083,.083,.078,.073,.073,.073,.073 for 1976 to 1983
ITRSTMRAT	Short Term Interest Rate .08,.08,.08,.077,.072,.072,.072,.072 for 1976 to 1983
	Change in short term debt outstanding at year end -350.498 for 1976 0. for 1977 to 1983
LEVPOFCHG	Change in level of pool of funds -152.483,-100., for 1976, 1977 0. for 1978 to 1983
FRCDBTHY1	Fraction of long term debt sold in first half year .5 for 1976 to 1983
	No preferred stock sold
DPSCMN	Per share common dividend 3.40 for 1976 to 1983
	Discount from market at which equity sold .2, for 1976 to 1983
MBR	Market/Book ratio 1.25 for 1976 to 1983
QTRCEQ	Quarter in which common equity is sold 2.,3., for 1976 to 1977 4. for 1978 to 1983
	Minimum payout ratio .55 for 1976 to 1983
	Maximum payout ratio 1. for 1976 to 1983
	Parts of gross plant and retirements always default

APPENDIX XI.2

Values for Finance Variables for 75OBJ1

APRMIN — Aggregate payout ratio for minority interest
.85 for 1976 to 1983

MINEQTSLD — New equity sold to minority shareholders
35. for 1976 to 1978, 50. for 1979 to 1983

DBTRTOACH — Objective Debt Ratio
.492,.485,.48,.47,.46,.45,.45,.45,. for 1976 to 1983

ITRLTMRAT — Long Term Interest Rate
.083,.083,.083,.078,.073,.073,.073,.073 for 1976 to 1983

ITRSTMRAT — Short Term Interest Rate
.08,.08,.08,.077,.072,.072,.072,.072 for 1976 to 1983

Change in short term debt outstanding at year end
-350.498 for 1976 0. for 1977 to 1983

LEVPOFCHG — Change in level of pool of funds
-152.483,-100., for 1976, 1977 0. for 1978 to 1983

FRCDBTHY1 — Fraction of long term debt sold in first half year
.5 for 1976 to 1983

No preferred stock sold

DPSCMN — Per share common dividend
.40 for 1976 to 1983

Discount from market at which equity sold
.2, for 1976 to 1983

MBR — Market/Book ratio
1.25 for 1976 to 1983

QTRCEQ — Quarter in which common equity is sold
2.,3., for 1976 to 1977 4. for 1978 to 1983

Minimum payout ratio
.55 for 1976 to 1983

Maximum payout ratio
1. for 1976 to 1983

Parts of gross plant and retirements always default

APPENDIX XI.3

Values for Finance Variables for 75PROJ2

APRMIN	Aggregate payout ratio for minority interest .85 for 1976 to 1985
MINEQTSLD	New equity sold to minority shareholders 35. for 1976 to 1978, 50. for 1979 to 1985
DBTRTOACH	Objective Debt Ratio .49,.48,.47,.46,.45,.45,.45,.45,.45,.45 for 1976 to 1985
ITRLTMRAT	Long Term Interest Rate .083,.083,.083,.078 for 1976 to 1979 .073 for 1980 to 1985
ITRSTMRAT	Short Term Interest Rate .08,.08,.08,.077 for 1976 to 1979 .072 for 1980 to 1985
	Change in short term debt outstanding at year end -350.498 for 1976 0. for 1977 to 1985
LEVPOFCHG	Change in level of pool of funds -152.483,-100., for 1976 and 1977 0. for 1978 to 1985
FRCDBTHY1	Fraction of long term debt sold in first half year .5 for 1976 to 1985
	No preferred stock sold
DPSCMN	Per share common dividend 3.40 for 1976 to 1985
	Discount from market at which equity sold .2 for 1976 to 1985
MBR	Market/Book ratio 1.25 for 1976 to 1985
QTRCEQ	Quarter in which common equity is sold 2. for 1976 to 1985
	Minimum payout ratio .55 for 1976 to 1985
	Maximum payout ratio 1. for 1976 to 1985
	Parts of gross plant and retirements always default

APPENDIX XI.4

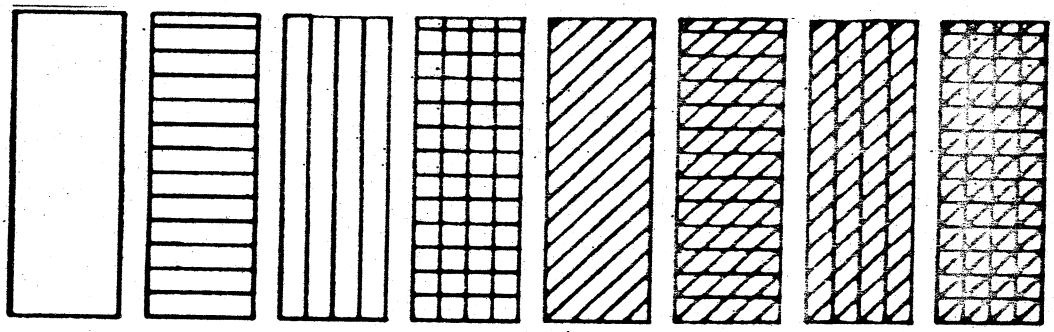
Values for Finance Variables for 75OBJ2

APRMIN	Aggregate payout ratio for minority interest .85 for 1976 to 1985
MINEQTSLD	New equity sold to minority shareholders 35. for 1976 to 1978, 50. for 1979 to 1985
DBTRTOACH	Objective Debt Ratio .49,.48,.47,.46,.45,.45,.45,.45,.45,.45 for 1976 to 1985
ITRLTMRAT	Long Term Interest Rate .083,.083,.083,.078 for 1976 to 1979 .073 for 1980 to 1985
ITRSTMRAT	Short Term Interest Rate .08,.08,.08,.077 for 1976 to 1979 .072 for 1980 to 1985
	Change in short term debt outstanding at year end -350.498 for 1976 0. for 1977 to 1985
LEVPOFCHG	Change in level of pool of funds -152.483,-100., for 1976 and 1977 0. for 1978 to 1985
FRCDBTHY1	Fraction of long term debt sold in first half year .5 for 1976 to 1985
	No preferred stock sold
DPSCMN	Per share common dividend 3.40 for 1976 to 1985
	Discount from market at which equity sold .2 for 1976 to 1985
MBR	Market/Book ratio 1.25 for 1976 to 1985
QTRCEQ	Quarter in which common equity is sold 2. for 1976 to 1985
	Minimum payout ratio .55 for 1976 to 1985
	Maximum payout ratio 1. for 1976 to 1985
	Parts of gross plant and retirements always default

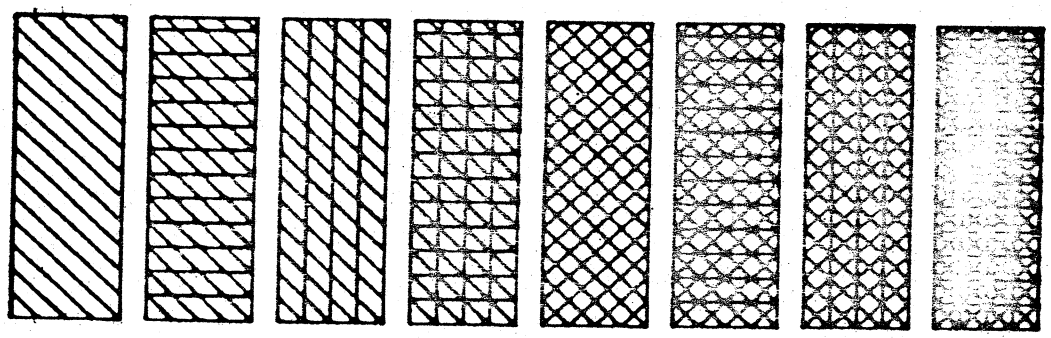
APPENDIX XJ

Bar Types and Bar Codes APPENDIX XJ.1
Dashed and Dotted Lines and Codes APPENDIX XJ.2

Appendix XJ.1



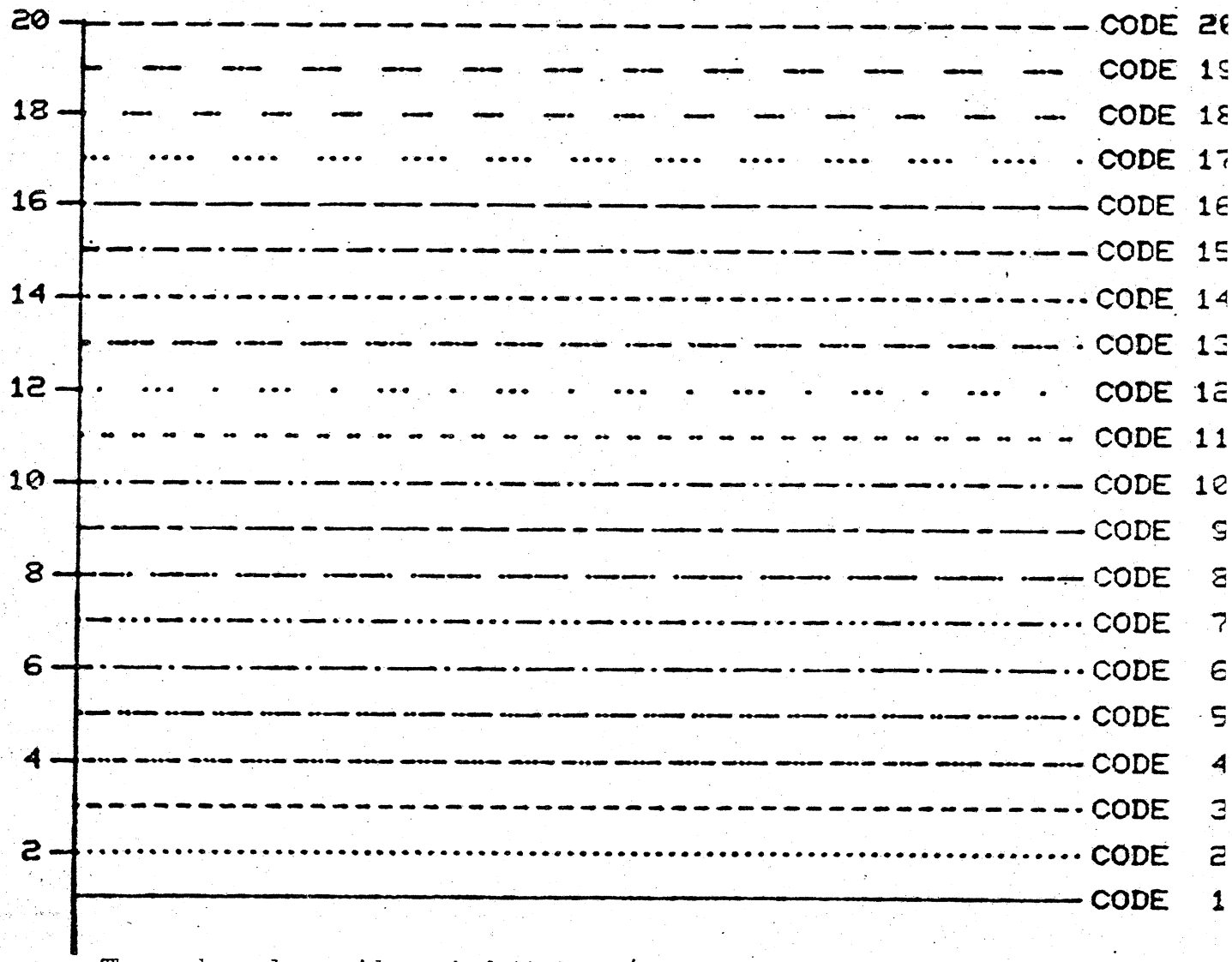
1. 2. 3. 4. 5. 6. 7. 8.



9. 10. 11. 12. 13. 14. 15. 16.

The number under each bar is the code needed in the BAR CODES command to indicate what type of bar(s) to plot.

APPENDIX XJ.2



The number along side each dotted and/or dashed line is the code needed in the DASH CODE command to indicate what type of line(s) to plot.